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The Political and Social Economy of Care: Republic of Korea Research Report 2

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Republic of Korea

Analysis of Time Use Survey on Work and Care

1. Introduction

This chapter analyses time use data to explore work and care regimes in the Republic of Korea (Korea thereafter). The National Statistics Office (NSO) has conducted time use surveys (TUS) every five years from 1999, with the intention to collect information on how people spend their time during a 24-hour period. Through the analysis of time use data, this report aims first to analyse how individuals from different socioeconomic backgrounds and different types of households allocate their time to paid and unpaid care work. Secondly, it aims to compare the monetary value of unpaid care work with various macro-economic indicators.

The instrument for the 1999 TUS consists of two parts: the household characteristics questionnaire and the time-diary survey. The first part collected data on household characteristics, including composition of the household, nature of dwelling, car ownership, care for preschool children, and individual characteristics including gender, age, education, marital status, employment status, occupation, weekly working time, status of workers and subjective evaluation of time pressure and tiredness. In the 2004 survey, the household and individual questionnaires were separated and the instrument thus includes three parts: household questionnaire, the individual questionnaire for respondents 10 years of age and older, and the time-diary. In both surveys, all the household members aged 10 and older were asked to record their main and simultaneous activities in the time diary, which was structured in 10 minute slots for the designated two days.

The 1999 survey sample was generated from the multi-purpose household sample (HAF-MP), which was derived from the 1995 population and housing census, using three-stage stratified sampling methods. The 850 enumerator districts were selected from the multipurpose household sample, using systematic sampling, and 20 households were selected in each enumerator district. The 1999 sample consists of 42,953 individuals aged 10 and older and 16,389 households from 850 enumerator districts. The 2004 TUS sample also was generated from the multipurpose household sample, which this time was derived from the 2000 population and housing census, using three-stage stratified sampling methods. The 850 enumerator districts were selected from the multipurpose household sample, using systematic sampling, and 15 households were selected in each enumerator district. The 2004 sample consists of 31,634 individuals aged 10 years and older and 12,651 households from 850 enumerator districts. The data from both surveys were subsequently weighted to be representative of the population aged 10 years above of the country as a whole.

All the self-recorded activities in the time diary, in both the 1999 and 2004 data are coded into three-digit codes, which are divided into nine broad categories. The nine categories are 1) personal care activities; 2) employment; 3) study; 4) household maintenance ; 5) family care 6) voluntary service; 7) leisure; 8) travel; and 9) others. Personal care comprises activities such as sleeping, eating and drinking, personal hygiene and health care. Household maintenance comprises activities such as food preparation, clothes care, cleaning, purchasing goods for household care, and so forth. Family care comprises activities such as care for family members including infants, children, spouses, parents and other family members. Voluntary service comprises helping neighbours and volunteer activities. The 1999 data are

designed according to 137 activity categories, and the 2004 data according to 125 activity categories. Appendix 1 provides codes of all the activities in 1999 and 2004. The changes in codes between 1999 and 2004 included some that relate to paid work and unpaid care work and which thus affect our analysis.

2. Description of 1999 and 2004 TUS

This section describes the 1999 and 2004 TUS. The focus of the research is on gender differences, thus all the outcomes are disaggregated by sex. The gender differences by various socio-economic factors are also presented. The socio-economic factors considered include age, education, marital status, children status, work status, employment status, personal income and household type.

Table 1 Distribution of sample by sex 1999, 2004

	1999	2004
Male	50	49
Female	50	51
Total	100	100

Table 1 shows the distribution of the 1999 and 2004 data by sex. In 1999, the distribution of population between males and females was 50:50. In 2004, the ratio had changed to 49:51. This is a reliable outcome, compared to national statistics which show a 50:50 composition of the population between males and females.

Table 2 Distribution of sample by sex and age group 1999, 2004

		1999	2004
Male	10-14	9	9
	15-64	83	83
	65+	8	8
	Total	100	100
Female	10-14	8	8
	15-64	82	80
	65+	10	12
	Total	100	100

Table 2 disaggregated the data by sex and age group. The analysis divides the sample cases into three age groups. The first is 10-14, the second 15-64 and the final is 65 and over. In both 1999 and 2004, the second age group comprises the largest portion of the sample. The proportion of females aged 65 and over increased by two percent between 1999 and 2004, while the male proportion remained constant at 8 percent.

Table 3 Distribution sample by sex and settlement type 1999, 2004

	1999			2004		
	Urban	Rural	Total	Urban	Rural	Total
Male	90	10	100	92	8	100
Female	90	10	100	92	8	100

Table 3 gives the distribution of the sample by settlement type. It shows that in both surveys, the majority of the sample, 90 percent, lived in urban areas in 1999 and 92 percent in 2004.

The 1995 and 2000 population and housing census from which the TUS sample is drawn, shows 12 percent of population in rural settlement in 1995 and 10 percent in 2000.

Table 4 Distribution of sample by sex and education 1999, 2004

		1999	2004
Male	Low	16	13
	Middle	56	50
	High	28	36
	Total	100	100
Female	Low	29	25
	Middle	53	49
	High	18	26
	Total	100	100

Table 4 disaggregated the sample by sex and education. The survey used seven categories for education. They are: no education, primary school, middle school, high school, 2 years of college, four years of university and graduate school. Furthermore, TUS collects further details on educational background in relation to educational ‘status’, i.e. whether he/she finished his/her study, is still in school, dropped out of school, or is taking a break. To simplify matters, the descriptive analysis here focuses on the level of education and groups the respondents into three categories. For low education, we include those with no education and those with primary school education; for middle level of education, we include those with middle and high school education; and we include those with college education and above under high level of education. Around 50 percent of the sample had middle level of education. Between 1999 and 2004, the percentage with college and above education increased for both men and women. In both years more men than women had high education.

Table 5 Distribution of sample by sex and marital status 1999, 2004

		1999	2004
Male	Single	36	36
	Married	61	61
	Divorced/widowed	3	3
	Total	100	100
Female	Single	29	29
	Married	57	57
	Divorced/widowed	14	14
	Total	100	100

Table 5 disaggregated the sample by marital status. Around 60 percent of the individuals are married. Divorced and widowed men constituted three percent in 1999 and 2004. For women the equivalent figures were 14 percent both in 1999 and 2004. This is similar to the national statistics, but for a slightly different age group. According to the NSO (NSO, 2000, 2005), in 2000, among those aged 15 and over, married men were 61 percent, single men 35 percent and divorced/widowed men four percent. In 2005, the corresponding figures were 35 percent, 60 percent, and five percent. Among women, in 2000, 25 percent were single, 60 percent were married, and 15 percent were divorced/ widowed. In 2005, the equivalent figures were 25 percent, 58 percent, and 16 percent.

Table 6 Distribution of sample by sex and children status 1999, 2004

		1999	2004
Male	With children	20	15
	No children	80	85
	Total	100	100
Female	With children	21	14
	No children	79	86
	Total	100	100

Table 6 disaggregated the sample by children status. The category ‘with children’ covers those who have preschool children who are 8 years old or younger. Around 20 percent of men and women reported that they had children in this age group in 1999, while the figures decreased to 15 percent for men and 14 percent for women in 2004. This may in part reflect the fall in the fertility rate, which dropped from 1.42 to 1.16 between 1999 and 2004.

Table 7 Distribution of sample by sex and work status 1999, 2004

		1999	2004
Male	Working	65	67
	Not working	35	33
	Total	100	100
Female	Working	45	47
	Not working	55	53
	Total	100	100

Table 7 disaggregates the sample by work status. The TUS asks respondent if he/she has worked during last week for pay. The TUS considers those answering yes as working and others not working. Among men, 65 percent responded to work for pay in 1999, and 35 percent not. On the other hand, 45 percent of women reported that they were working for pay, while 55 percent reported that they were not.

Table 8 Distribution of sample by sex and employment status among workers 1999, 2004

		1999	2004
Male	Salary worker	62	65
	Employers	6	10
	Self-employed	28	23
	Unpaid family worker	3	2
	Total	100	100
Female	Salary worker	58	66
	Employers	2	3
	Self-employed	16	15
	Unpaid family worker	23	16
	Total	100	100

Table 8 shows the distribution of the sample by employment status for those who responded they were working for pay during last week. In 1999, 62 percent of men reported being salary workers and the proportion increased by three percentage points in 2004. On the other hand, 58 percent of female workers reported being salary workers in 1999, and the figure increased by 8 percentage points in 2004. As a result, the proportion of women who were had become very similar to that of men. More women in the paid economy in 2004 suggests possible changes in the way women configured time between paid work and unpaid care between 1999 and 2004, as we shall see later, when we look at the time being allocated to unpaid care. According to the NSO, in 2000 salary workers were 60 percent of the total female work

force, while for males, the equivalent figure was 64 percent. It increased to 65 percent for men and 64 percent for women in 2005.

Table 9 Distribution of sample by sex and personal income group 2004

	Male	Female	Total
No income	34	61	48
1-999	12	23	18
1000-1999	30	13	22
2000-2999	15	3	9
3000-3999	6	0.7	3
4000+	3	0.3	2
Total	100	100	100

Table 9 presents the distribution of the sample by personal income. We cannot provide the analysis by income group for 1999 as data on income are not available for this year. The 2004 TUS collects personal income data in terms of 10 income groups. The first group has income less than \$500 per month (what currency are you using? This also needs to be specified in the table), the second between \$500 and \$999, the third \$1,000-1,499, the fourth \$1,500-1,999, the fifth \$2,000-2,499, sixth \$2,500-2,999, seventh \$3,000-3,499, eighth \$3,500-3,999, ninth \$4,000-4,999 and tenth \$5,000 and over. We provide the income distribution of the sample, re-grouping these into five groups. Thirty-four percent of men and 61 percent of women had no-personal income. Twelve percent of men and 23 percent of women had an income less than \$1,000 per month; three percent of men and 0.3 percent of women had an income more than \$ 4,000 per month. 99 percent of women and 91 percent of men had either no income or an income that was less than \$2,999 per month.

Table 10 shows the disaggregation of data based on household composition by age group. Three age group categories of household members are defined: children (Ch) (10-19 years), adult (Ad) (20-59 years) and older adults (Old) (60 years and above). From this, we formulate 6 household types. They are 'Ch+Ad', 'Ch+Ad+Old', 'Ad', 'Ad+Old', 'Old' and 'Ch+Old'. The number of 'Ch' is too small to report.

Table 10 Distribution of sample by household composition by age group

		1999	2004
Male	Ch+Ad	35	33
	Ch+Ad+Old	8	5
	Ad	38	41
	Ad+Old	14	14
	Old	5	6
	Ch+Old	1	1
	Total	100	100
Female	Ch+Ad	35	32
	Ch+Ad+Old	9	6
	Ad	35	38
	Ad+Old	14	14
	Old	7	9
	Ch+Old	1	1
	Total	100	100

As Table 10 shows, household types classified as “Ch & Ad”, and “Ad” only account for more than 70 percent of all household types in both 1999 and 2004. The proportion of three generation households (i.e. “Ch+Ad+Old” decreased between 1999 and 2004, while the proportion of older households increased. The proportion of female in Old households is bigger than that of males, and the proportion of Old households increased between 1999 and 2004, particularly for women.

Finally, table 11 shows care needs and capacity for care. We devise the notion of “care dependency ratio” and calculate it as follows. Those aged between 0 and 12 years and those 75 years and older (whom we assume to need varying degrees of care) are divided by those who fall in the 15 to 75 age group (whom we assume to be potential care givers). For the group of potential carees, children 0-6 years are given a full weight, as are the adults aged 85 years and above; children in the 7-12 year age group and adults between the ages of 75 and 84 years are given a half-weight.

The population and housing census produced by the NSO was used for the calculation of the care dependency ratio. The census is conducted every five years starting from 1970, in this analysis we use the 2000 and 2005 censuses. Table 11 shows that the care dependency ratio is 0.15 in 2000 and 0.18 in 2005. In 2005, the number of children under 12 years increased by 27 percent and the Old aged 65 and over by 37 percent and the number of carers by 18 percent which translates into an increase in the care the dependency ratio in 2005.

Table 11 Care dependency ratio in 2000 and 2005

	2000		2005	
Carees	Unweighted	Weighted	Unweighted	Weighted
Children 0-6	2,043,342	2,043,342	3,595,765	3,595,765
Children 7-12	3,919,188	1,959,594	4,030,013	2,015,007
Adults 75-84	904,357	452,179	1,199,129	599,565
Adults 85+	143,206	143,206	233,288	233,288
Total	7,010,066	4,598,321	9,058,195	6,443,625
Carers	31,032,127	32,032,127	36,622,889	36,622,889
Dependency ratio	0.15		0.18	

3. Defining paid and unpaid work

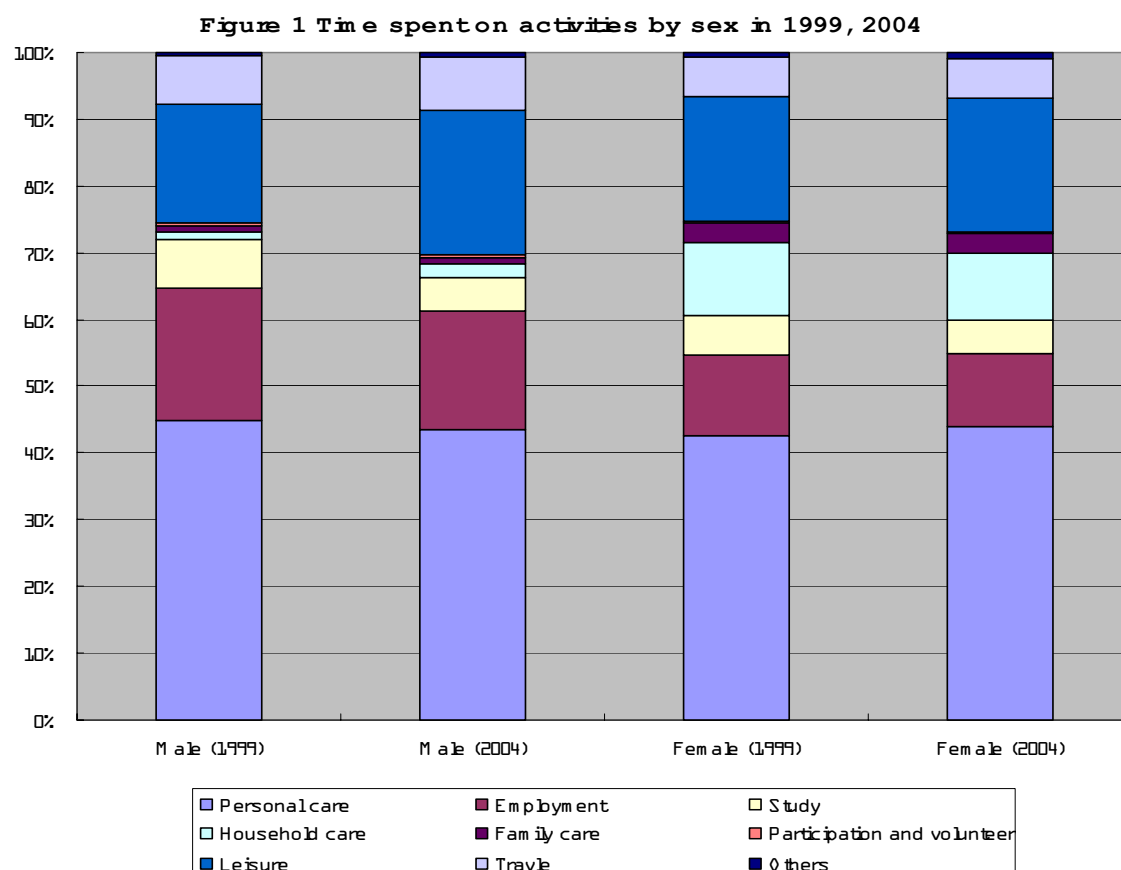
According to the System of National Accounts (SNA), the production boundary includes all production of goods and services for the market, as well as all production of goods for own use. Extended SNA work includes activities that are recognized as work or production, but that fall outside the current SNA production boundary. This includes household maintenance, management and shopping for own household, care for children, the sick, elderly and disabled for own household and community services and help to other households. Non-productive activities include learning, social and cultural activities, mass media use and personal care and self-maintenance.

For the analysis that follows, paid work includes all the activities that are classified under employment including travel for work purposes. In the case of 2004 data, we also included category 611 or “helping for gainful activities”. For the extended SNA work, the analysis covers household maintenance, person care and the voluntary category as unpaid care work. Person care includes all the activities within family care as well as travel for family care; it

also includes community services and help to other households. Household maintenance includes all the activities classified under household care.

3.1 Time spent on activities

Before looking at the time spent on paid and unpaid care work, we present the proportions of time spent on different activities, based on the categories produced by NSO. Figures are percentages of time spent, calculated by 24-hour. All activities thus sum up to 24 hours or 1440 minutes. Time spent on activities is divided by 1440.



Between 1999 and 2004, time spent by individuals on personal care and leisure increased. On the other hand, time spent on employment and study decreased. Also, there are significant gender differences in the time that is allocated to employment, household care and family care. Men spent 19 percent and 18 percent of their time on employment in 1999 and 2004 respectively, while women spent 12 percent and 11 percent respectively. For the same years men spent one percent and two percent of their time on household care, while women spent 11 and 10 percent. Men spent one percent on family care while women spent three percent on family care.

4. Identification of key determinants of time spent on care

Tables 12-15 present outcomes of Tobit estimations to identify key independent variables for time spent on unpaid care work and person care. Tobit estimations are meant for estimations, such as time use, in which the dependent variable has an upper and/or lower limit. The estimation for unpaid care work and person care is run for both 1999 and 2004 considering variables such as sex, age, age-squared, education, marital status, preschool children in the home, and employment for both years.

Table 12 Regression outputs on duration of time spent on unpaid care work 1999

	Coef.	Std. Err.	T	P>t	[95% Conf. Interval]	
Male	-228.7	1.2	-181.4	0.000	-231.4	-226.2
Married	85.7	1.7	49.4	0.000	82.3	89.1
Employed	-126.9	1.3	-93.3	0.000	-129.5	-124.2
Childed	93.4	1.5	61.6	0.000	90.4	96.4
LowEd	0.7	1.9	4.1	0.684	-3.0	4.6
HighEd	1.6	1.7	9.3	0.351	-1.8	0.5
Age	16.5	0.2	796.0	0.000	16.1	16.9
AgeSquared	-0.1	.0	-724.4	0.000	-0.1	-0.1
_cons	-146.4	3.4	-422.3	0.000	153.2	-139.6

All variables except education are significant factors for time spent on unpaid care work in 1999. Of the discrete variables, being male has the strongest effect, followed by being employed. It appears that being married, having preschool children, and being young increase the time that is spent on unpaid care work while other factors decrease it. All the variables together explain 48.3% of the variance in the time spent on unpaid care work.

Table 13 Regression outputs on duration of time spent on person care 1999

	Coef.	Std. Err.	T	P>t	[95% Conf. Interval]	
Male	-106.9	1.6	-64.7	0.000	-110.1	-103.6
Married	98.0	2.3	41.7	0.000	93.4	102.6
Employed	-82.5	1.6	-49.5	0.000	-85.7	-79.2
Childed	165.2	1.7	95.3	0.000	161.8	168.6
LowEd	-17.9	2.4	-7.3	0.000	-22.7	-13.1
HighEd	10.2	2.0	4.9	0.000	6.1	14.3
Age	8.8	0.2	30.6	0.000	8.2	9.3
AgeSquared	-0.09	0	-30.4	0.000	-0.1	-0.0
_cons	-278.7	5.0	-55.2	0.000	-288.6	-268.8

All variables are also found to be statistically significant for time spent on person care. Of the discrete variables, having preschool children has the strongest effect, followed by being male. Being male, being employed, and having minimal education tend to decrease time spent on person care while other factors increase it. All the variables together explain 21.7% of the variance in the time spent on person care.

Table 14 Regression outputs on duration of time spent on unpaid care work 2004

	Coef.	Std. Err.	T	P>t	[95% Conf. Interval]	
Male	-203.2	1.3	-146.6	0.000	-205.9	-200.5
Married	63.6	1.9	33.1	0.000	59.9	67.4
Employed	-127.3	1.5	-83.3	0.000	-130.3	-124.3
Childed	130.3	2.0	63.8	0.000	126.3	134.3
LowEd	1.7	2.2	0.7	0.444	-2.6	6.0
HighEd	3.8	1.7	2.2	0.026	0.4	7.2
Age	16.4	0.2	74.0	0.000	16.0	16.8
AgeSquared	-1.5	0.0	-64.8	0.000	-1.6	-.1
_cons	-157.1	3.8	-41.2	0.000	-164.5	-149.6

In 2004, apart from education, all factors tested for an influence on the allocation of time for unpaid care work are statistically significant. Of the discrete factors, being male remains the strongest factor, followed by having preschool children. Being married, having children, and age tend to increase time spent on unpaid care work while other factors decrease it. All the variables together explain 47.8% of the variance in the time spent on unpaid care work.

Table 15 Regression outputs on duration of time spent on person care 2004

	Coef.	Std. Err.	T	P>t	[95% Conf. Interval]	
Male	-88.2	1.8	-48.3	0.000	-91.8	-84.7
Married	79.7	2.6	29.8	0.000	74.4	84.9
Employed	-90.2	1.9	-46.8	0.000	-93.7	-86.2
Childed	180.7	2.3	77.1	0.000	176.2	185
LowEd	-9.8	2.9	-3.3	0.001	-15.5	-4.0
HighEd	9.7	2.1	4.6	0.000	5.6	13.9
Age	8.9	.3	28.8	0.000	8.3	9.5
AgeSquared	-.1	.0	-28.8	0.000	-.1	-.09
_cons	-256.5	5.5	-46.4	0.000	-267.3	-245.6

All the factors, this time including education, are also found to be significant for influencing the allocation of time on person care. Of the discrete factors, like in 1999, having preschool children has the strongest influence, followed by being male. Being married, having preschool children, being highly educated, and age tend to increase time spent on person care while other factors decrease it. All the variables together explain 23.1% of the variance in the time spent on person care.

5. Time spent on paid work and unpaid care work

This section examines how individuals and households spent time on SNA work and extended SNA work (which includes household maintenance and person care) in 1999 and 2004. The following tables provide percentages of Mean Population Time (MPT) calculated for a 24-hour period and Participation Rates (PR).

Table 16 Time on paid and unpaid care work by sex (%), 1999, 2004

		1999		2004	
		MPT	PR	MPT	PR
Male	SNA work	22	60	21	60
	Household maintenance	1	36	2	37
	Person care	1	15	1	17
Female	SNA work	13	42	12	42
	Household maintenance	11	83	11	82
	Person care	3	40	3	39

There are significant gender differences in time spent on paid and unpaid care work. In 1999, men spent 22 percent of their day on paid work while women spent 13 percent. Men spent two percent of a day on unpaid care work, while women spent 14 percent. This means women spent seven times more time on unpaid care work than men did, while the time women spent

on paid work was just over 59 percent of that men spent. In 2004, both men and women spent slightly reduced time on paid work, although significant gender differences remained. Males spent three percent of a day on unpaid care work while women spent 14 percent. In addition, men spent 21 percent of a day on paid work while women spent 12 percent.

A gendered pattern also exists in the participation rate for paid and unpaid care work. In 2004, more men (60 percent) than women (42 percent) participated in paid work while a considerable number of women but fewer men participated in unpaid care work. 82 percent of women spent some time on household maintenance while only 37 percent of men did so. In addition, 39 percent of women and 17 percent of men spent some time on person care.

Table 17 Time on paid and unpaid care work by sex and age group (%), 1999, 2004

			1999		2004	
			MPT	PR	MPT	PR
Male	10-14	SNA work	0.1	0	0.1	0.1
		Household maintenance	0.5	1	5	23
		Person care	0.1	0.4	2	8
	15-64	SNA work	26	68	25	68
		Household maintenance	1	36	1	37
		Person care	1	16	1	19
	65+	SNA work	12	49	12	49
		Household maintenance	3	54	3	59
		Person care	1	14	1	15
Female	10-14	SNA work	0.1	0.1	0	0
		Household maintenance	1	3	10	35
		Person care	0.3	0.8	3	10
	15-64	SNA work	15	46	14	47
		Household maintenance	12	87	11	85
		Person care	3	45	4	44
	65+	SNA work	8	37	7	36
		Household maintenance	12	90	12	93
		Person care	1	21	1	21

Table 17 shows time spent on paid and unpaid work in 1999 and 2004 by gender and age group. Several important features emerge from this table. First, there was a significant increase in time spent by young people on household maintenance and person care between 1999 and 2004. In 1999, the time spent and participation rates were small, while in 2004, 23 percent of males aged between 10 and 14 spent some time on household maintenance, averaging five percent of the day over the male population of this age, while 8 percent of them spent time on person care, with a mean population time of three percent of the day. In the case of their female counterparts, in 2004, 35 percent of females aged between 10 and 14 spent time on household maintenance, averaging 10 percent of the day over the male population of this age, while 10 percent of them spent time on person care, with a mean

population time of three percent of the day. The increases in both amount of time and the participation rates are due to the increase of their involvement in the activities during the weekends.

Second, apart from the youngest age group, significant gender differences are evident in time spent on paid and unpaid work. Men aged 15 to 64 spent 26 percent of the day in 1999 and 25 percent in 2004 on paid work. On the other hand, women in the same age group spent 15 percent in 1999 and 14 percent in 2004 on paid work. Thus, women in this age group spent 9 percentage points less time than men on paid work in 1999 and 11 percentage points less in 2004. Men in this category spent two percent of their time in both years on unpaid care work, while women spent 15 percent of their time in both 1999 and 2004. Furthermore, older men spent 12 percent of their time on paid work and four percent on unpaid care work in 1999 and 2004. On the other hand, older women spent 8 percent of their time on paid work and 13 percent on unpaid care work in 1999, and 7 and 13 percent, respectively, in 2004.

Participation rates also reflect gendered patterns for the time on both paid and unpaid care work. Among men, 68 percent aged 15 to 64 participated in paid work in 2004. The corresponding figure for women is 47 percent. In terms of participation in household maintenance, although 85 percent of women aged 15 to 64 participated in 2004, 37 percent of men did so. Older women's participation in household maintenance appears to be much higher than that of older men's: 93 percent of women participated in household maintenance, while only 59 percent of old men did in 2004.

Table 18 Time on paid and unpaid care work by sex and education (%) 1999, 2004

			1999		2004	
			MPT	PR	MPT	PR
Male	Low	SNA work	22	68	19	67
		Household maintenance	2	54	2	54
		Person care	1	14	1	14
	Middle	SNA work	30	79	28	76
		Household maintenance	1	37	1	41
		Person care	1	18	1	20
	High	SNA work	30	77	29	77
		Household maintenance	1	36	1	38
		Person care	1	21	1	23
Female	Low	SNA work	15	53	12	48
		Household maintenance	13	95	13	95
		Person care	2	25	1	25
	Middle	SNA work	15	49	15	49
		Household maintenance	15	94	14	95
		Person care	4	58	4	54
	High	SNA work	17	51	16	50
		Household maintenance	11	85	10	84
		Person care	5	52	5	51

Table 18 shows time spent on paid and unpaid work by gender and education. This report uses three categories of education; low, middle and high. Significant gender differences are evident in time spent on both paid and unpaid work. In 1999, men with a lower education level spent 22 percent of the day on paid work while women in the same category spent 15 percent; on unpaid work, the amount of time was three and 15 percent of the day, respectively. Women with a mid-level education spent nine times more time on unpaid work

than men with a similar education level, while women with higher education spent over eight times more time on unpaid work than the corresponding men. The gender differences remained similar in 2004. For example, women with a mid-level education spent nine times more time on unpaid care work than men with similar education.

Furthermore, for men, the more educated they were, the more likely they were to participate in paid work. In 1999, 68 percent of men with a low level of education, 79 percent for those with a mid-level education, and 77 percent with higher-level education spent some time on paid work. Interestingly, even though the amount of time spent by men on person care is the same for all education levels, men with higher education were more likely to be involved in person care than men with lower educational qualifications. Fourteen percent of men with a low-level education did person care compared to 18 and 21 percent for those with middle and higher educational qualifications, respectively. On the other hand, men with a low-level education were more involved in household maintenance than men with higher education levels; in 1999, 54 percent (low), 37 percent (middle), and 36 percent (high) spent some time on household maintenance. These patterns remained in 2004.

Women with a mid-level education spent the most time on unpaid care work when compared to other education levels. In 1999, women with a mid-level education spent 19 percent of their day on this work, while women with a low level spent 17 percent, and women with higher education spent 16 percent on unpaid care work. This difference remained in 2004. Furthermore, it appears that women with higher education spent more time on person care than those with lower education levels. In 1999, minimally educated women spent two percent while mid-level, four percent and highly educated women spent five percent; in 2004, the corresponding figures are one, four, five percent, respectively. It also is important to point out that highly educated women tended to spend less time on household maintenance than those with less educational qualifications. This may be in part because highly educated women can afford to hire helpers for household maintenance or purchase convenient equipment for household management.

Table 19 Time on paid and unpaid care work by sex and marital status 1999, 2004 (%)

			1999		2004	
			MPT	PR	MPT	PR
Male	Single	SNA work	11	30	11	32
		Household maintenance	1	31	1	30
		Person care	0.5	5	1	6
	Married	SNA work	29	79	28	78
		Household maintenance	1	38	2	41
		Person care	1	21	1	24
	Divorced/	SNA work	19	56	17	56
	Widowed	Household maintenance	4	63	4	71
		Person care	1	14	1	14
Female	Single	SNA work	10	28	11	31
		Household maintenance	2	53	2	48
		Person care	0.3	8	0.3	7
	Married	SNA work	14	48	13	46
		Household maintenance	16	98	15	98
		Person care	4	60	5	59
	Divorced/	SNA work	13	45	12	43
	Widowed	Household maintenance	11	90	11	93

Person care	1	25	1	23
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Table 19 shows time spent on paid and unpaid care work by gender and marital status. In 2004, married men spent more time on paid work than single or divorced/widowed men. Divorced/widowed men appear to have spent more time on unpaid care work than married men. In 2004, married men spent 28 percent of their time on paid work and three percent on unpaid care work. On the other hand, divorced/widowed men spent 17 percent on paid work and five percent on unpaid care work. Meanwhile, divorced/widowed women spent less time both on paid and unpaid care work than married women. In 2004, married women spent 13 percent on paid work and 20 percent on unpaid care work, while divorced/widowed women spent 12 percent on both paid and unpaid care work.

Table 20 Time on paid and unpaid care work by sex and children status 1999, 2004 (%)

			1999		2004	
			MPT	PR	MPT	PR
Male	With preschool children	SNA work	31	80	32	85
		Household maintenance	1	32	1	36
		Person care	2	38	2	51
	Without preschool children	SNA work	20	56	19	56
		Household maintenance	1	37	1	38
		Person care	1	9	1	11
Female	With Preschool children	SNA work	9	34	9	33
		Household maintenance	14	91	14	98
		Person care	10	83	13	98
	Without Preschool children	SNA work	14	44	13	43
		Household maintenance	11	81	10	80
		Person care	1	28	1	29

Table 20 shows time spent on paid work and care by gender and children status. Having preschool children meant more time spent on paid work for men, but less time for women. In 2004, men with children spent 32 percent of their day on paid work, while childless men spent 19 percent. In the same year, women with children spent 9 percent of their time on paid work while childless women spent 13 percent on paid work. Having preschool children also significantly impacted time spent on unpaid work. Women with preschool children spent more time on unpaid work—by 12 percentage points in 1999 and 16 percentage points in 2004—than childless women. The amount of time spent on unpaid care work by women with preschool children is more than eight times greater than time spent by males.

Table 21 Time on paid work and unpaid care work by sex and work status 1999, 2004 (%)

			1999		2004	
			MPT	PR	MPT	PR
Male	Working	SNA work	34	89	32	86
		Household maintenance	1	36	1	38
		Person care	1	17	1	20
	Not working	SNA work	1	7	1	8
		Household maintenance	2	38	2	38
		Person care	1	11	1	12
Female	Working	SNA work	28	86	26	83
		Household maintenance	10	89	9	87
		Person care	2	37	2	36
	Not working	SNA work	1	5	1	6
		Household maintenance	12	62	12	79
		Person care	4	42	4	42

Table 21 shows time spent on paid work and care by gender and work status. Again, significant gender differences are evident. Work status appears to significantly affect women's time spent on work and care. For women, not working means increased time spent on unpaid care work. In 1999, working women spent 12 percent of the day on unpaid care work while not working women spent 16 percent. In 2004, the corresponding figures are 11 and 16 percent, respectively. In addition, unlike men, for women working does not necessarily mean a smaller proportion of time spent on unpaid work. In 1999, working men spent two percent of the day on unpaid care work, while working women spent 12 percent on unpaid work. Similar gender differentials are evident in 2004 as well.

Table 22 Time on work and care by household type 1999, 2004(%)

		1999						2004					
		SNA work		Household maintenance		Person care		SNA work		Household maintenance		Person care	
		MPT	PR	MPT	PR	MPT	PR	MPT	PR	MPT	PR	MPT	PR
Male	Ch+Ad	18	47	1	29	1	10	17	47	1	30	1	13
	Ch+Ad+Old	16	46	1	30	1	12	14	44	1	31	1	15
	Ad	29	76	1	39	1	20	27	73	1	40	1	22
	Ad+Old	23	65	2	42	1	17	22	65	2	42	1	15
	Old	14	55	3	61	1	12	13	54	4	64	1	14
	Ch+Old	5	20	1	40	1	11	4	16	1	37	1	10
Female	Ch+Ad	11	35	9	73	2	36	10	34	9	70	2	40
	Ch+Ad+Old	11	39	9	76	2	30	9	33	9	72	2	35
	Ad	15	46	13	92	5	52	15	48	11	89	5	46
	Ad+Old	14	48	12	88	3	38	13	46	13	88	3	34
	Old	12	49	14	97	2	18	10	46	14	97	1	18
	Ch+Old	6	25	9	80	1	30	5	21	10	80	1	27

Table 22 shows the time spent on paid and unpaid care work by household type. There are significant gender differences in terms of time spent on paid and unpaid care work. In 1999, except for individuals in Ad+Old and Old household, all male groups spent only one percent of their time on extended SNA work. On the other hand, women in all household types spent

between 9 and 14 percent of their time on household care and between one and five percent on person care. The gender differences remained significant in 2004.

Child care, spouse care and parent care

This section examines person care in more detail, by addressing how much time men and women spend on child care, spouse care and parent care. For the analysis on 2004 TUS, codes for care for preschool child and care of school-age child (511, 512, 513, 519, 521, 522, 523, 534, 529) are included under child care. Codes 531, nursing spouse, and 539, other care for spouse, are included under spouse care. Code 541 nursing parents and other care for parents is included under parents care. For the analysis of 1999 TUS, child care includes codes 511, 512, 519, 521, 522, 523, 529. Spouse care is code 530 and parents care is 540. This analysis includes the whole sample population, aged 10 years and over, and the Mean Population Time (MPT) is provided in minutes, which is calculated for 24 house minute and Participation Rates (PR) in percentages.

Table 23 Time on child, spouse and parent care by sex 1999, 2004 (minutes/ %)

	Child care				Spouse care				Parent care			
	1999		2004		1999		2004		1999		2004	
	MPT	PR	MPT	PR	MPT	PR	MPT	PR	MPT	PR	MPT	PR
Male	6	9	7	11	1	1	1	2	1	1	1	2
Female	35	31	35	29	2	10	3	3	1	2	2	3

Table 23 shows how many minutes of a day males and females spent on child, spouse, and parents care in 1999 and 2004. In 1999, men spent 6 minutes on child care, and one minute for both spouse and parent care. Women spent 35 minutes on child care, two minutes on spouse care and one minute on parent care. 31 percent of women spent some time on child care, 10 percent on spouse care, and two percent on care for parents. For men, the participation rate was 9 percent in child care, one percent on spouse care and one percent on care for parents. In 2004, men spent 7 minutes on child care and one minute for spouse and parents care. In the same year, women spent 35 minutes on child care, three minutes on spouse care and two minutes on parents care.

Table 24 Time on child, spouse and parent care by sex and education 1999, 2004 (minutes/ %)

		Child care				Spouse care				Parent care			
		1999		2004		1999		2004		1999		2004	
		MPT	PR	MPT	PR	MPT	PR	MPT	PR	MPT	PR	MPT	PR
Male	Low	5	6	3	4	1	1	1	1	0.4	1	1	2
	Middle	6	9	6	10	0.4	1	1	2	1	1	1	2
	High	8	14	10	17	0.4	1	1	2	1	1	2	2
Female	Low	14	15	12	11	2	4	2	10	1	2	1	3
	Middle	43	38	38	34	3	12	3	2	1	2	2	3
	High	48	33	54	36	2	10	3	4	1	2	2	2

Table 24 shows time spent on child, spouse, and parents care by education. Both men and women tend to spend more time on child care than on spouse or parent care and there are significant gender differences in the time spent and in participation rates. Individuals with

higher education appear to participate more in child care. Highly educated men spent 10 minutes on average on child care in 2004 and 17 percent of them spent some time on it in 2004. Highly educated women spent 54 minutes on child care and 36 percent of them participated in the care activity.

Table 25 Time on child, spouse and parent care by sex and marital status 1999, 2004 (minutes/ %)

		Child care				Spouse care				Parent care			
		1999		2004		1999		2004		1999		2004	
		MPT	PR	MPT	PR	MPT	PR	MPT	PR	MPT	PR	MPT	PR
Male	Single	1	2	1	1	-	-	-	-	1	1	2	3
	Married	9	15	11	18	1	1	1	3	1	1	1	2
	Divorced/widowed	6	6	5	8	-	-	-	-	0.3	1	1	1
Female	Single	2	3	2	3	-	-	-	-	1	3	2	4
	Married	58	48	58	46	4	17	4	17	1	2	2	3
	Divorced/widowed	16	16	13	14	-	-	-	-	1	1	1	1

Table 25 shows time spent on child, spouse and parent care by sex and marital status. In 2004, 46 percent of married women spent 58 minutes on average on child care while 18 percent of married men spent 11 minutes. Divorced/widowed women also appear to be more involved in child care activities than their male counterparts. 14 percent of them spent some time on this activity, averaging 13 minutes for the entire group while 8 percent of the men participated, averaging five minutes for the whole group.

Table 26 Time spent on child, spouse and parents care by sex and work status 1999, 2004 (minutes/ %)

		Child care				Spouse care				Parent care			
		1999		2004		1999		2004		1999		2004	
		MPT	PR	MPT	PR	MPT	PR	MPT	PR	MPT	PR	MPT	PR
Male	Employed	7	12	8	15	0.4	1	1	2	1	1	1	2
	Not employed	5	6	4	5	1	1	1	1	1	2	2	3
Female	Employed	21	28	20	27	2	7	2	7	1	1	1	2
	Not employed	47	32	49	31	3	12	3	11	2	3	2	4

Table 26 shows the differences in terms of time spent on child, spouse, and parents care by work status. In 2004, employed men spent 8 minutes on child care, and one minute on spouse and one minute on parent care. Employed women spent 20 minutes on child care, two minutes on spouse care and one minute on parent care. 27 percent of women spent some time on child care, 7 percent on spouse care, and two percent on care for parents. For men, the participation rate was 15 percent in child care, two percent for both spouse and parent care. Five percent of not employed men spent four minutes on child care while, 31 percent of not employed women spent 49 minutes on child care. In addition, not employed women appear to participate more in spouse and parents care than those who are employed.

Table 27 Time on child, spouse and parents care by sex and household type 1999, 2004 (minutes/ %)

		1999						2004					
		Child care		Spouse care		Parents care		Child care		Spouse care		Parents care	
		MPT	PR	MPT	PR	MPT	PR	MPT	PR	MPT	PR	MPT	PR
Male	Ch+Ad	1	4	1	1	2	1	3	7	0.3	1	2	2
	Ch+Ad+Old	3	5	0.2	1	1	2	3	7	3	1	4	2
	Ad	6	15	7	1	12	1	6	16	10	1	13	1
	Ad+Old	6	10	5	1	8	2	5	8	5	2	8	2
	Old	4	4	6	2	4	1	3	4	2	4	4	0.4
	Ch+Old	4	4	0.1	1	0.5	2	2	6	1	1	3	3
Female	Ch+Ad	12	30	11	9	8	2	19	33	2	10	2	3
	Ch+Ad+Old	11	24	9	4	8	3	12	27	14	5	8	3
	Ad	51	42	45	17	40	1	46	36	43	15	37	2
	Ad+Old	25	25	25	6	19	3	22	22	19	7	19	3
	Old	6	7	8	4	5	1	5	6	7	5	6	1
	Ch+Old	8	21	6	2	1	1	7	20	2	2	2	1

Table 27 shows time spent on child, spouse, and parents care by household type. It shows that women across all household types were more likely to participate in child care than care for other adults. In 1999, females in Adult-only households spent 51 minutes on child care, 45 minutes on spouse care, and 40 minutes on parent care. Men in Adult-only households spent 6 minutes on child care, 7 minutes on spouse care and 12 minutes on parent care.

6. Standard indicators

This section provides a standard set of indicators on time use for comparison across countries included in this project, which cover the age group 15-64 years. The indicators include time spent on three SNA-categories: SNA work, extended SNA work which includes household maintenance, care for household members and community care: and non-productive activities. We then look at extended-SNA work in more detail: unpaid care work, person care and community care. We also examine the distribution of time spent on unpaid care work and person care. Table 28 shows time spent on three SNA categories. It shows the mean number of minutes per day when averaged across the full population, using the 24 hour minute (MPT), the participation rates (PR) and the mean actor time, the mean value in minutes spent by the actors who actually did the activities (MAT).

Table 28 Mean minutes per day by SNA-related category and sex (1999) (minutes/ %/ minutes)

	Mean population time			Participation time			Mean actor time		
	SNA	ExtSNA	Non-prod	SNA	ExtSNA	Non-prod	SNA	ExtSNA	Non-prod
Male	379	39	1022	68%	44%	100%	546	86	1022
Female	219	240	981	46%	87%	100%	463	274	981
Total	299	139	1001	57%	66%	100%	513	210	1001

Men tend to spend more time on SNA work than women while women spend significantly larger amounts of time per day on extended SNA work than men. Sixty-eight percent of men and 46 percent of women participated in SNA work. Eighty-seven percent of women participated in the extended SNA work while only 44 percent of men did so.

Table 29 Mean minutes per day by SNA-related category and sex (2004) (minutes/ %/ minutes)

	Mean population time			Participation rate			Mean actor time		
	SNA	ExtSNA	Non-prod	SNA	ExtSNA	Non-prod	SNA	ExtSNA	Non-prod
Male	362	43	1035	68%	47%	100%	519	90	1035
Female	210	227	1003	47%	86%	100%	440	261	1003
Total	286	135	1019	57%	67%	100%	487	202	1019

In 2004, women spent more than five times as much time on extended SNA work than men, while men spent 42 percent more time than women on SNA work. Compared to 1999, both men and women spent slightly less time on SNA work. In addition, the time spent by men on extended-SNA work increased by four minutes, while the time spent by women decreased by 13 minutes. It could be regarded as more gender equality in extended-SNA work but the change is not significant. Finally, both men and women spent increased time on non-production activities in 2004.

Table 30 Time spent on care for people in households and care for other household and community (1999) (minutes/ %/ minutes)

	Male			Female			Total		
	MPT	PR	MAT	MPT	PR	MAT	MPT	PR	MAT
Household maintenance	23	36%	63	184	87%	212	103	62%	168
Care for people in households	10	15%	72	52	44%	118	32	29%	106
Care for people in other households	4	2%	236	4	3%	137	4	2%	180

Table 30 shows time spent on household maintenance, care for people in household and in other households. Men spent 23 minutes a day on household maintenance, 10 minutes on care for people in household, and four minutes on care for people in other households. On the other hand, women spent 184 minutes on household maintenance, 52 minutes on care for people in households, and four minutes on care for people in other households. Among actors, women spent more than three times the time spent by men on household maintenance. Women also spent more time than men on care activities for people in households. Men, on the other hand, spent more time than women on care activities for people in other households. In total, the population aged between 15 and 64 spent 103 minutes on household maintenance, 32 minutes on care activities for people in households, and four minutes on care activities for people in other households. The actors spent 168, 106, 180 minutes respectively.

Table 31 Time spent on care for people in households and care for other households and the community (2004) (minutes/ %/ minutes)

	Male			Female			Total		
	MPT	PR	MAT	MPT	PR	MAT	MPT	PR	MAT
Household maintenance	25	37%	64	169	86%	196	97	62%	157
Care for people in households	13	18%	73	55	44%	125	34	31%	111
Care for people in other households	5	2%	243	3	2%	120	4	2%	181

Table 31 provides 2004 data on household maintenance, care for people in the household, and care for people in other households. Compared to 1999, time spent by men on the three activities increased, while for women, the increase occurred only for time spent on care for people in households. Men spent 25 minutes on household maintenance, 13 minutes on care for people in households and five minutes on care for people in other households. On the other hand, women spent 169, 55 and three minutes respectively. Among actors, time spent

by men on care for people in other households increased by 7 minutes while those spent by women decreased by 17 minutes. Time spent by women on household maintenance decreased by 6 minutes while those time on care for people in household increased by 7 minutes.

The distribution of time below concerns the population aged 15 to 64. It would be ideal to use full minutes; however, this analysis uses a 24-hour approach for two reasons. First is the non-availability of data on simultaneous activities, despite the fact that the NSO collected data on both main and simultaneous activities in 1999. Second, no significant differences are evident between time spent on main and all activities. For example, in 2004, the time differences are 0.09 minutes for production activities, 0.45 for household maintenance, and 0.01 for personal care for males. For females, the average time difference between main activities and main with simultaneous activities are 0.75, 1.17, and 0.01 minutes, respectively. For comparative purpose, this analysis focuses on the main activities, with the total amount of time spent on these activities equalling 24 hours.

Figure 2 Distribution of time spent on unpaid care work by sex 1999

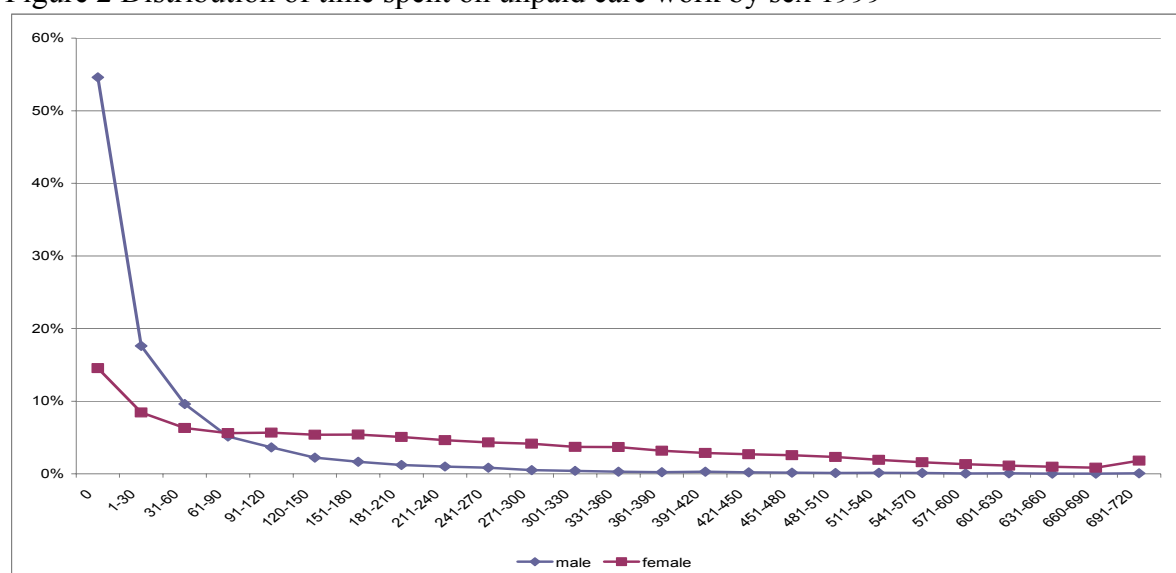


Figure 2 shows the distribution of time spent on unpaid care work by sex in 1999. According to the data, 54 percent of males spent almost no time on unpaid care work. At the other end of the scale, 1.5 percent of females spent more than 12 hours on unpaid care work, while no males did so.

Figure 3 Distribution of time spent on person care by sex 1999

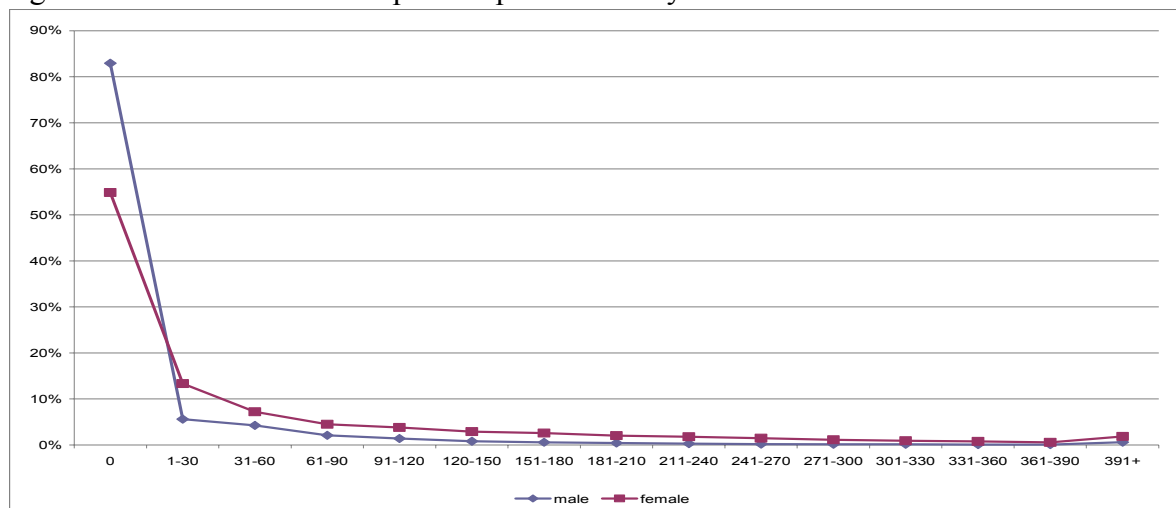


Figure 3 shows the distribution of time on person care in 1999. Almost 83 percent of males and 55 percent of females spent no time on person care. Meanwhile, 0.7 percent of males and 2.5 percent of females spent more than 6 hours per day on person care.

Figure 4 Distribution of time spent on unpaid care work by sex 2004

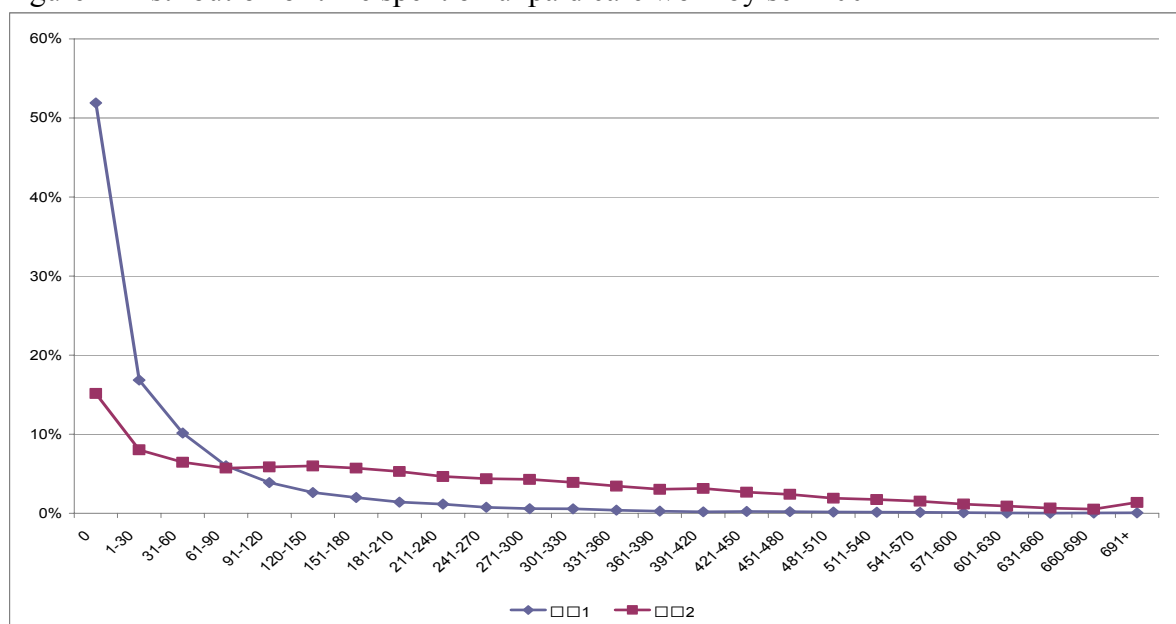
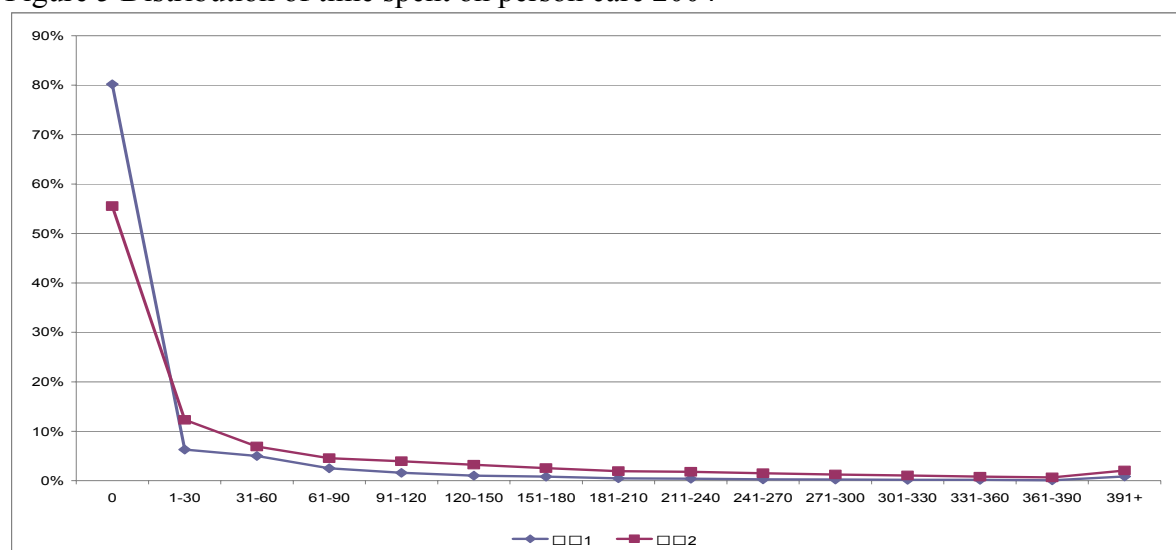


Figure 4 shows the distribution of time on unpaid care work in 2004. Over 51 percent of males but around 13 percent of females spent no time on unpaid care work. Meanwhile, no males and 1 percent of females spent more than 12 hours on unpaid care work

Figure 5 Distribution of time spent on person care 2004



In 2004, 80 percent of males and 56 percent of females spent no time on person care while 1 percent of males and 3 percent of females spent more than 6 hours on person care.

7. Use of paid care providers

This section examines the use of paid care providers. There are several types of childcare facilities available in Korea such as those run by public organizations, social welfare institutions, schools or churches and private facilities. In the 1990s, childcare facilities run by schools or churches were more common. Currently, the number of private child care facilities are 7,662 (Ministry of Gender Equality and Family, 2005) and 51 percent of them were established between 2000 and 2004 (MGEF, 2005).

The TUS has seven categories for paid care providers. They are 1) family/relatives; 2) neighbours and paid care workers; 3) No-ri-bang; 4) Eu-rin-yi-zip; 5) private educational institutions; 6) religious organizations; and 7) Others. Family and relatives takes into account cases in which payment is made for family or relatives who undertook child care. No-ri-bang is established by the Child Care Act and home-based child caring facilities. In general, No-ri-bang provides care for children younger than 6 years of age, and caters for between 5 and 20 children on a regular basis. We call it child care facilities for convenience. Eu-rin-yi-zip provides care for children of working mothers. Eu-rin-yi-zip normally has children less than 8 years old and has more than 21 children on a regular basis. We call it child care centres for convenience. By private educational institutions, the NSO took into account the cases in which parents procure care for their children by private educational institutions. The NSO took into account the cases where children are being looked after by child care facilities run by churches or temples as religious organizations. The analysis includes only those with preschool children and who actually made payment for child care.

Table 32 Paid care provider by children's age 1999, 2004

Children age	0-3		4+	
Year	1999	2004	1999	2004
Family/relatives	3	25	13	4
Neighbours/paid care workers	2	19	16	3
Child care facilities	5	13	13	3
Child care centres	26	30	31	47
Private education institutions	10	3	4	23
Religious organizations	22	1	12	10
Others	33	11	3	11
Total	100	100	100	100

Table 32 shows the distribution of paid care providers used for preschool child by the children's age. In 1999, among those with children aged 0 and 3 who paid for child care, 26 percent used child care centres, 22 percent used religious organizations and 10 percent used private education institutions. In 2004, the use of child care centres increased by 4 percentage points while use of private education institutions and religious organizations went down by 7 percent and 21 percent respectively. In 1999, among those with children aged 4 years old and over who paid for care, 31 percent used child care centres, 16 percent asked neighbours and paid care workers. In 2004, the use of child care centres increased by 16 percent while use of neighbours/paid care workers reduced by 13 percent. In addition, the use of private education institutions increased from 4 to 23 percent between these two years. In short, regardless of the age of children, relative use of child care centres increased, while use of religious organization decreased over this period. In addition, among those with children 0-3 years old who use paid care, 44 percent asked their families/relatives and neighbours/paid care workers to support their child care.

Table 33 Paid care provider by mother's education and children's age 1999, 2004

Children age	0-3						4+					
Year	1999			2004			1999			2004		
Mother's education	L	M	H	L	M	H	L	M	H	L	M	H
Family/relatives	9	9	19	49	32	22	4	4	3	4	6	3
Neighbours/paid care workers	5	19	8	-	1	22	1	2	1	-	3	2
Child care facilities	8	13	9	51	11	12	6	4	8	12	4	1
Child care centres	24	26	41	-	50	27	31	27	22	14	51	42
Private education institutions	3	5	3	-	4	2	22	37	5	69	12	40
Religious organizations	16	26	4	-	1	0.3	23	23	19	-	15	1
Others	35	1	16	-	1	14	13	3	42	-	9	12
Total	100	100	100	100	100	100	100	100	100	100	100	100

Table 33 shows the distribution of paid care providers by mother's education and children's age. We consider women who are married, have preschool children and paid for child care. In 1999, 24 percent of low educated mothers with children aged between 0 and 3 who paid for child care and 31 percent of low educated mother with children age 4 and over, used child care centres. Among those with middle education, child care centres and those run by religious organizations were mostly used, regardless of the children's age. Among the highly educated mothers, again the child care centres were mostly used. In addition, it is interesting

to note that highly educated women with children aged between 0 and 3 asked their families or relatives more than mothers with other educational qualification to assist in child care.

In 2004, among mothers with low education with children 0-3, the relative use of child care facilities increased dramatically and also the number of those asked for their families and relatives increased significantly. On the other hand, among the low educated mothers with children aged 4 and over, the relative use of private education institutions increased dramatically. Furthermore, among mothers with middle education, those with children 0-3 used more child care centres and asked for help from their families and relatives. The middle educated mothers with children 4 and over increasingly used child care centres. Among those with high education with children 0-3, more of them asked for help from families and relatives and they became a greater user of neighbour and paid care workers. Among those with high education with children 4 and over, the use of child care centres and private education institutions increased.

In short, the use of families and relatives for child care became more common between the years, among those mothers with children aged 0 and 3 who paid for child care. The use of neighbour/paid care workers increased among those with high education with children 0-3. The child care facilities became most popularly used for child care among those with low education. The use of child care centres increased among those mothers with middle education for all ages of children and high education for children aged 4 and over. The use of private education institutions also increased among mothers with children aged 4 and over who paid for childcare. Finally, the use of child care facilities run by religious organization decreased dramatically between 1999 and 2004. The changes in the use of paid child care facilities begs further examinations, and in part is related to institutional changes and expansion of child care related institutions and this will be discussed in the following report.

8. Valuation and comparison of unpaid care work

This section discusses the value of unpaid care work, comparing it to various economic measures. This discussion adopts the average earnings and generalist approaches. In general, the average earnings approach uses average earnings for all people in the economy. We use all employed earnings and earnings for all employees. All employees approach uses the average earnings for all paid workers. All employed approach uses the average earnings for self-employed, own account and employees. Three national datasets are designed to collect information on earnings: Wage Structure Survey (WS) by the Ministry of Labour (ML), Economically Active Population Survey (EAP) by NSO, and Korean Labour and Income Panel Survey (KLIP) by Korean Labour Institute (KLI). The WS collects wage information for regular employees who work in workplaces with five or more employees, excludes certain industries including the domestic service industry, and does not collect earnings information by occupation in detail; these are all disadvantages in light of the current discussion. Meanwhile, EAP does not collect earnings data for self-employed and personal accounts or wage information by occupation in detail—also disadvantages given the purpose of the current analysis.

Meanwhile, the KLIP seems to be the most advantageous to the current discussion. KLIP is a longitudinal study of representative samples of Korean households and individuals living in urban areas; it is constructed annually to track the characteristics of households as well as economic activities, labour movement, income, expenditure, job training, education, and social activities of individuals. Initiated by KLI in 1998, the ninth wave was conducted for

2006. The original sample in 1998 included 5,000 households. KLIP collects wage information for employees, self-employed, and personal accounts. Moreover, it collects earnings data by occupation. However, it collects data on occupation detailed to three digits. In addition, the KLIP does not have any data for females in domestic service-related work in 1999. Thus, the current analysis on valuation and comparison of unpaid care work provides discussions for 2004 only. For the generalist approach, occupations included for the calculation of average wages and the codes are as follows. Code 411, personal services related workers includes child –care workers, institution-based personal care workers, home-based personal care workers and personal care and related workers. Code 421, cooks include head cooks, restaurant cooks, fast-food restaurant cooks and tea cooks. Code 911, domestic and related helpers, cleaners and launderers, include char workers, building cleaners, cleaners in hotels and restaurants, vehicle and related cleaners and hand launderers and pressers.

For the average domestic wage approach, wages of domestic and related helpers, cleaners and launderers are considered. To calculate the value of unpaid care work, the total number of hours spent on unpaid care work and personal care by gender is determined for each year. This number is multiplied by population over 10 years old. This is multiplied by the appropriate earnings for a particular method, which results in total hours spent on unpaid care work and person care per year. This result is then compared to several economic measures. Appendix 3 shows hours spent on unpaid care work and personal care per year, population over 10 years old, total hours per year, earnings per hour, and total earnings.

8.1 Comparison of the value of unpaid care work with GDP

Table 34 shows the value of unpaid care work and personal care as a percentage of GDP, which was 779,380,000 million won in 2004.

Table 34 Unpaid care work and person care as percentage of GDP: different approaches

	Unpaid care work			Person care		
	Male	Female	Total	Male	Female	Total
Average earnings for all employed	6	24	29	2	6	8
Average wages of all employees	5	24	29	2	6	8
Average generalist wage	-	-	18	-	-	5
Average domestic worker wage	-	-	19	-	-	5

The value of unpaid care work by males was equivalent to 6 percent of GDP using all employed approaches. The value of person care by males was two percent. On the other hand, the value of unpaid care work by females was 24 percent and person care six percent. In total, the value of unpaid care work ranged from 18 percent of the GDP, using the generalist approach, to 29 percent using all employed approaches in 2004. The value of work on personal care ranged from 5 to 7 percent depending on the approach used.

Table 35 shows the value of unpaid care work and person care in absolute terms. It shows that the value of unpaid care work is estimated at between 41,297,404 million won and 225,124,975 million. The value of person care is between 16,582,741 million won and 59,335,264 million won.

Table 35 Total value of unpaid care work and person care by year (million won): different approaches

Unpaid care work	Person care
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	Male	Female	Total	Male	Female	Total
Average earnings for all employed	46530185	183659461	225124975	18683935	43239511	59335264
Average wages of all employees	41297404	185943915	222684944	16582741	43777347	58692155
Average generalist wage	-	-	138086497	-	-	36394890
Average domestic worker wage	-	-	144860794	-	-	38180364

8.2 Comparison of unpaid care work with tax revenue

Table 36 shows the value of unpaid care work in comparison to tax revenues. Taxes in Korea comprise national and local taxes. National taxes are divided into internal taxes, customs duties, and three earmarked taxes; the local taxes include province taxes and city & county taxes. The internal taxes consist of direct and indirect taxes. Direct taxes include income tax, corporation tax, inheritance and gift tax, and comprehensive real estate holding tax. Indirect tax includes value-added tax, special excise tax, liquor tax, stamp tax, securities transaction tax and transportation tax. Of these ten taxes, the income tax, corporation tax, and value added tax make up the bulk of the Korean tax revenue. We use both direct and total tax for comparison. In 2004, direct tax was 49,806,900 million won and total gross tax was 151,997,400 million won (NSO, 2007).

Table 36 Value of unpaid care work compared to taxation: different approaches

	Direct tax			Total tax		
	Unpaid work	care	Person care	Unpaid work	care	Person care
Average earnings for all employed	452%		119%	148%		39%
Average wages of all employees	447%		118%	147%		39%
Average generalist wage	277%		73%	91%		24%
Average domestic worker wage	291%		77%	95%		25%

The value of unpaid care work is clearly larger than that of direct tax regardless of the approach used. Even the value of personal care exceeds the value of direct tax in the two approaches. The value of unpaid care work exceeds that of total taxes in both all employed and all employees approaches.

8.3. Comparison of the value of paid and unpaid care work

This section examines the value of unpaid care work in comparison with the value of paid work. For the value of paid work, we calculate the total wages earned by paid employees. In other words, we exclude those self-employed and unpaid family workers. For the volume of earnings of paid employees, we multiply the total earnings, calculated by NSO by the number of the paid employees. In 2004, earnings for all paid work equaled 131,300,600 million won for males and 37,078,900 million won for females, for a total of 168,379,600 million won.

Table 37 Unpaid care work compared to earnings for all paid work in economy

	Unpaid care work			Person care		
	Male	Female	Total	Male	Female	Total
Average earnings for all employed	35%	495%	134%	14%	117%	35%
Average wages of all employees	32%	501%	132%	13%	118%	35%
Average generalist wage	-	-	82%	-	-	22%
Average domestic worker wage	-	-	86%	-	-	23%

Table 37 shows the value of unpaid care work compared to earnings for all paid work in the economy by gender. The value of unpaid care work was 35 percent of male earnings for males when using the all employed approach. The value of work done by male for person care is 13 percent using the all employees approach and 14 percent using the all employed approach. The value of unpaid care work done by women is around five times greater than the value of paid work done by females in the economy. In addition, the value of person care done by females exceeds the value of paid work by females in the economy. In total, the value of unpaid care work exceeds the value of paid work in the economy using the all employed and employee approaches.

A. Comparing the value of care work with government expenditure on care-related personnel expenditure

Social services such as education, health and social welfare are managed and delivered by national and provincial sphere of governments. However, source on local government's expenditure on the care-related personnel expenditure is not available. Thus, the analysis has to focus on care-related personnel expenditure of central government which underestimates the total value of government expenditure on care-related personnel expenditure. For education, we aggregate the personnel expenditures of national and public schools, Ministry of Education (MOE) and educational support institutions under the MOE (17,780,731 million won) and the personnel expenditure of Ministry of Health and Social Welfare (172,189 million won) to arrive at a total of 17,952,920 million won.

Table 38 Unpaid care work compared to national government social services

	Unpaid care work	Person care
Average earnings for all employed	1254%	331%
Average wages of all employees	1240%	327%
Average generalist wage	769%	203%
Average domestic worker wage	807%	213%

Table 38 suggests that the value of unpaid work could be more than twelve times that of national government's social services. Even with the generalist wage approach, it is more than seven times the value of government social services. The value of person care could also be more than three times that of government social services, using the average earnings for all employed approach.

8.5 Comparing the value of unpaid care work with remuneration of paid care workers

Table 39 shows the value of unpaid care work in comparison with remuneration of paid workers in care-related occupations as recoded in the EAPS. We include all occupations classified under the personal services related workers (occupation code 411) and domestic and related helpers, cleaners and laundries (occupation code 911). For the volume of earnings of paid care workers, we multiply the total earnings by the number of the paid care workers, calculated by NSO. In 2004, total paid care workers' earnings equalled 5,108,098 million won, for women 1,565,329 million won for men it was 3,542,770 million won.

Table 39 Value of unpaid care work compared to remuneration of paid care workers

	Unpaid care work			Person care		
	Male	Female	Total	Male	Female	Total
Average earnings for all employed	1313%	11733%	4407%	527%	2762%	1162%

Average wages of all employees	1166%	11879%	4359%	468%	2797%	1149%
Average generalist wage	-	-	2703%	-	-	712%
Average domestic worker wage	-	-	2836%	-	-	747%

Table 39 suggests that the value of unpaid work could be more than 43 times that of paid care workers. Even with the generalist wage, it is more than 27 times the value of paid care workers. In particular, the value of unpaid care work by women could be more than 117 times that of female paid care workers. The value of person care by women could also be more than 27 times that of paid care workers, using the average earnings for all employed and employees approach.

8.6 Comparison of total hours spent on unpaid care work, personal care, and paid work

Table 40 Comparison of total annual hours spent on paid work, unpaid care work and person care

	Male	Female	Total
Paid work	39359838761	23070524905	62213471662
Unpaid care work	5328697339	26563416520	32105672478
Person care	2139708584	6253906724	8461960188

Table 40 shows total hours spent on unpaid care work, personal care, and paid work for both males and females. In 2004, the number of hours females spent on paid work equalled 59 percent of those males spent. The number of hours males spent on unpaid care work equalled only 20 percent of those females spent. Males spent 34 percent of the number of hours spent by females on personal care. Overall, the total hours spent on unpaid care work equalled 51 percent of total hours spent on paid work.

9. Key findings

The analysis of the TUS on time spent on paid and unpaid care work in 1999 and 2004 highlights several features.

- There are significant gender differences in time spent on paid work and care, in that men are more likely to participate in paid work and to spend more time on it, while the opposite pattern holds in respect of unpaid care work. Overall, women spent time more than four times more time on unpaid care work than men while they spent around approximately 57 percent of the time spent by men on paid work.
- Apart from the first age group, 10-14, there are significant gender differences in time spent on paid and unpaid work. Among those aged between 15 and 64, while men spent considerably larger amounts of time on paid work, women spent similar amounts of time on paid and unpaid care work. The older men are likely to spend time on paid work while the counterpart women did so for unpaid work.
- There are also significant gender differences in time spent on paid and unpaid care work by education. For example, in 1999 women with low educational qualification spent about five times more time on unpaid care work than men with similar level of education; women with a middle level of education spent nine times more time on unpaid work than men with similar education; and those with high education spent eight times more on unpaid care work than their male counterparts. These features remained similar in 2004. In addition, for men, the

more educated they are, the more likely they were to participate in paid work, and men with low education were more involved in household maintenance than men with higher education. Furthermore, women with middle education spent the largest amount of time on unpaid care work. Women with high education spent more time on person care than those with lower education levels. Finally, highly educated women tend to spend less time on household maintenance than those with lower education.

- Married individuals spent more on paid work than single or divorced or widowed individuals. Divorced or widowed men appear to spend more time on unpaid care work than married men. Married women spent the longest time on unpaid care work. Divorced/widowed women spent less time both on paid and unpaid care work than married women.
- Having preschool children meant more time spent on paid work for men, but less time spent on paid work for women. Furthermore, women with preschool children spent more time than childless women on unpaid care work by 12 percent in 1999 and 16 percent in 2004.
- Working women spend less time on unpaid care work than not working women. But, women working for pay spend considerable time on unpaid care work, compared to their male counterparts.
- Men in the different types of households spent extremely small amount of time on unpaid care work, while women in all household types spent significant amount of time.
- Both men and women were more likely to do child care than spouse and parent care.
- Among those aged between 15 and 64, men spent on average 25 percent of their day on paid work, three percent on unpaid care work and 72 percent on non-productive activities during a day. On the other hand, women spent 15 percent on unpaid care work, 16 percent on paid work and 69 percent on non-productive activities. Between 1999 and 2004, both men and women spent increased time on non-productive activities. Men spent increased time on unpaid care work and decreased time on paid work, while women spent decreased time on both unpaid care and paid work.
- There were significant changes in the use of paid care providers and there were significant variances in the changes by socio-economic characteristics. It is questionable to what extent and how public and private child care facilities changed between 1999 and 2004. The following chapters will explore these issues in more depth.
- We found that the value of unpaid care work, compared to GDP, is 29 percent using all employed approach and 18 percent, using domestic workers approach. The value of person care is 8 percent, using all employed approach and five percent using domestic workers approach. Furthermore, we found that the value of unpaid care work is larger than that of direct tax regardless of the approach used. The value of unpaid care work exceeds that of total tax both in the all employed and all employees approaches. In addition, the value of person care is 35 percent of total value of paid economy when using both all employed approaches and 22 percent, using generalist approach. The value of unpaid care work far exceeds the value of government expenditure on care-related personnel and the remuneration of paid care workers. Finally, we found that total hours spent on unpaid care work are 51 percent of total hours on paid work.

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APPENDIX 1: Activities Codes

1999 data code	2004 data code
1 PERSONAL CARE 11 Sleeping 111 Sleeping during night 112 Sleeping during day 12 Eating and drinking 121 Eating with family 122 other meals 123 Snacks and drinks 13 Personal hygiene 131 Personal hygiene 132 Dressing, make-up 133 Beauty care services 14 Health care 141 Self-medical treatment 142 Medical care from professional 143 Resting because of illness 199 Other personal care	1 PERSONAL CARE 11 Sleeping 111 Sleeping during night 112 Sleeping during day 12 Eating and drinking 121 Eating with family 122 Eating alone 123 Eating with others expect family 124 Snacks and drink 13 Personal hygiene 131 Personal hygiene 132 Grooming 133 Beauty care services 14 Health care 141 Doctoring oneself 142 Using health and care services 143 Resting because of illness 19 Other personal care 199 Other personal care
2 EMPLOYMENT 21 Employed/Self-employed work 211 Main job 212 Second job 213 Work breaks 214 Training during work 215 work brought home 216 Other work activities 220 Unpaid work in family business 230 Unpaid work on farm/fishery/forest 240 Unpaid work for self-consumption 250 Job search 260 Purchasing goods related to job 299 Other employment activities	2 EMPLOYMENT 21 Employed/Self-employed work 211 Main job 212 Second job 213 Resting from work 214 Training during work 215 Doing work at home 216 Other work-related activities 22 Unpaid work in family business 220 Unpaid work in family business 23 Unpaid work on farm/fishery/forest 230 Unpaid work on farm/fishery/forest 24 unpaid work fr self-consumption 240 Unpaid work for self-consumption 25 Job search 250 Job search 26 Purchasing goods related to job 260 Purchasing goods related to job 29 Other employment activities 299 Other employment activities

3 STUDY 31 Study at school/university 311 Classes and lectures 312 Breaks at school/university 313 Self-study at school/university 314 School events 319 Other study at school/university 32 Study outside school/university 321 Private lessons 322 Homework 329 Other study outside school/university 330 Purchasing goods related to study	3 STUDY 31 Study at school/university 311 Classes and lectures 312 Breaks at school/university 313 Self-study at school/university 314 School events 319 Other study at school/university 32 Study outside school/university 321 Private lessons 322 Homework 329 Other study outside school/university 33 Purchasing goods related to study 330 Purchasing goods related to study
4 HOUSEHOLD CARE 41 Food preparation 411 Meal preparation 412 Dish washing 413 Snack preparation/preserving 42 Clothes care 421 Laundry 422 Folding and storing clothes 423 Ironing/care of clothes 424 Clothes repair/laundry services 425 Handicraft 43 Cleaning and arrangement 431 Arrangement 432 Cleaning dwelling 433 Other cleaning activities 44 House upkeep 441 Repair services 442 Vehicle maintenance services 443 Other house upkeep activities 45 Purchasing food for household care 451 Daily necessities/groceries 452 Semi-durable goods 453 Capital goods 46 Household management 461 Book-keeping 462 Planning and budgeting 463 Administrative service 499 Other household care activities	4 HOUSEHOLD CARE 41 Food preparation 411 Meal preparation 412 Dish washing 413 Snack preparation/preserving 42 Clothes care 421 Laundry 422 Folding and storing clothes 423 Ironing/care of clothes 424 Clothes repair/laundry services 425 Handicraft 43 Cleaning and arrangement 431 Arrangement 432 Cleaning dwelling 433 Other cleaning activities 44 House upkeep 441 Repair services 442 Vehicle maintenance services 443 Other house upkeep activities 45 Purchasing food for household care 451 Daily necessities/groceries 452 Semi-durable goods 453 Capital goods 454 Purchasing via media 46 Household management 461 Book-keeping 462 Planning and budgeting 463 Administrative service 49 Other household care activities 499 Other household care activities

5 FAMILY CARE 51 Care of preschool child 511 Physical care 512 Reading/playing 519 Other preschool child care 52 Care of school-age child 521 physical care 522 Teaching the child 523 Visiting school 529 Other care of school-age child 530 Care of spouse 540 Care of parents 550 Other family care	5 FAMILY CARE 51 Care of preschool child 511 Physical care 512 Reading/playing 519 Other preschool child care 52 Care of school-age child 521 Physical care 522 Teaching the child 523 Visiting school 524 Nursing school-age child 529 Other care for school-age child 53 Care of spouse 531 Nursing spouse 539 Other care for spouse 54 Care for parents 541 Nursing parents 549 Other care for parents 55 Other family care 551 Nursing other family 559 Other care for other family
6 VOLUNTARY SERVICES 610 Helping neighbours 620 Community participation 630 Civic obligations, ceremonies 64 Voluntary services 641 For national or local events 642 For school/kindergarten children 643 For the disabled or the aged 644 Natural disaster relief activities 649 Other voluntary services	6 VOLUNTARY SERVICES 610 Helping neighbours 611 Helping gainful activities 612 Helping household activities 619 Other helping activities 62 Participation 621 Obligatory participation 622 Productive participation 629 Other participation 63 Volunteer activities 631 For national or local events 632 For school education of household Children 633 For non-household children, the aged, the disabled 634 Natural disaster relief activities 639 Other voluntary services

7 LEISURE	7 LEISURE
71 Socializing	71 Socializing
711 Telephone conversations	711 Telephone conversations
712 Within family and with relatives	712 Within family and with relatives
713 With others	713 With others
714 Visiting family graves	714 Through the internet
719 Other socializing activities	715 Visiting family graves
72 Mass media	719 Other socializing activities
721 Newspaper	72 Adults free time study
722 Magazine	721 Language
723 TV	722 Computer
724 Video	723 Licenses/skills for job
725 Radio	724 Hobbies
726 CD's cassette tapes etc.	729 Other adults free time study
727 Internet	73 Mass media
73 Adults free time study	731 Newspaper
731 Languages	732 Magazine
732 Computer	733 TV
733 Licenses/skills for job	734 Video, DVD

734 Hobbies 739 Other adults free time study 74 Religious activities 741 personal religious practices 742 Religious meeting 743 Other religious activities 75 Entertainment as spectator 751 Cinema 752 Concert/theatre 753 Museums, art, exhibitions 754 Sports participation 761 Walking, jogging 762 Climbing, hiking 763 Gymnastics/swimming 764 Other physical exercise 765 Driving/sightseeing/picnic 766 Other sports/outdoor activities 77 Hobbies, games and other 771 Reading books 772 Computer games 773 Playing/gambling 774 Other hobbies 775 Drinking alcohol/dancing 776 Smoking 777 Resting/doing nothing 780 Purchasing related to leisure 799 Other leisure activities	735 Radio 736 CD's cassette tapes etc. 737 Internet 74 Religious activities 741 Personal religious practice 742 Religious meeting 743 Other religious activities 75 Entertainment as spectator 751 Cinema 752 Concert/theatre 753 Museums, art, exhibitions 754 Sports events/outdoor activities 755 Other entertainment as spectator 76 Sports participation 761 Walking, jogging 762 Climbing hiking 763 Gymnastics/swimming 764 Other physical exercise 765 Driving/sightseeing/picnic 766 Other sports/outdoor activities 77 Hobbies, games and other 771 Reading books 772 Computer games 773 Playing/gambling 774 Other hobbies 775 Drinking alcohol/dancing 776 Smoking 777 Resting/doing nothing 78 Purchasing related to leisure 780 Purchasing related to leisure 79 Other leisure activities 799 Other leisure activities
8 TRAVEL 800 Waiting for travel 811 Personal care 82 Employment	8 TRAVEL 80 Waiting for a vehicle 800 Waiting for a vehicle 81 Personal care

821 To and from work 822 Other employment 831 Study 841 Household care 851 Family care 861 Voluntary services 87 Leisure 871 Socializing 872 Other leisure 891 Other purpose	811 Personal care 82 Employment 821 To and from work 822 Other employment 83 School/university 831 School/university 84 Household care 841 Household care 85 Family care 851 Family care 86 Voluntary services 861 Voluntary services 87 Leisure 871 Socializing 872 Adults free time study 873 Other leisure 89 Other purpose 891 Other purpose
9 OTHERS 919 Filling in time diary 999 Others	9 OTHERS 91 Filling in time diary 919 Filling in time diary 99 Others 999 Others

APPENDIX 2: Details of valuation calculations

Table 41 Average earnings of all employed in 2004

	Unpaid care work			Person care		
	Male	Female	Total	Male	Female	Total
Hours per year	259	1270	774	104	299	204
Population 10+	20574121	20916076	41480197	20574121	20916076	41480197
Total hours per year	5328697339	26563416520	32105672478	2139708584	6253906724	8461960188
Earnings per hour	8732	6914	7012	8732	6914	7012
Total earnings (Wm)	46530185	183659461	225124975	18683935	43239511	59335264

Table 42 Average earnings of all employees in 2004

	Unpaid care work			Person care		
	Male	Female	Total	Male	Female	Total
Hours per year	259	1270	774	104	299	204
Population 10+	20574121	20916076	41480197	20574121	20916076	41480197
Total hours per year	5328697339	26563416520	32105672478	2139708584	6253906724	8461960188
Earnings per hour	7750	7000	6936	7750	7000	6936
Total earnings (Wm)	41297404	185943915	222684944	16582741	43777347	58692155

Table 43 Average earnings for generalist approach in 2004

	Unpaid care work	Person care
Hours per year	774	204
Population 10+	41480197	41480197
Total hours per year	32105672478	8461960188
Earnings per hour	4301	4301
Total earnings (Wm)	138086497	36394890

Table 44 Average earnings for domestic workers approach in 2004

	Unpaid care work	Person care
Hours per year	774	204
Population 10+	41480197	41480197
Total hours per year	32105672478	8461960188
Earnings per hour	4512	4512
Total earnings (Wm)	144860794	38180364