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Time Use and Poverty

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This paper has been prepared as an input to the United Nations Research Institute for Social Development (UNRISD) project on Poverty Reduction and Policy Regimes. The aim of the project is to explore the causes, dimensions and dynamics of poverty. This particular paper is intended to inform the chapter of the UNRISD report that will explore the relationship between care and poverty. The paper draws on the analysis of time use survey data done under UNRISD's The Political and Social Economy of Care project to examine links between time use and poverty and, in particular, between unpaid care work and poverty.

The UNRISD Social and Political Economy of Care project focuses on six developing countries spanning three continents. In each of the continents, the focus countries include one that has more developed care/welfare infrastructure and one that is less developed. Thus in Asia the two countries are the Republic of Korea and India, in Africa they are South Africa and Tanzania, and in Latin America they are Argentina and Nicaragua.

One of the criteria for country selection was that a time use survey had been conducted fairly recently in the country. (In the case of Argentina, this survey covered only the City of Buenos Aires, and thus much of the discussion below relates only to the City.) Time use surveys differ from standard labour force surveys in that they ask respondents to report on all activities done in a specified period, such as a day or a week. In contrast, labour force surveys focus only on the forms of work that classify a person as 'employed' and that are utilised in estimations of gross domestic product (GDP).

Labour force surveys can therefore tell us the likelihood of a person (male or female) of a particular age or group being employed or unemployed, the type of work they do in employment, their status in employment (whether they are an employee, self-employed or an employer) and the conditions under which they work. This is clearly directly relevant for any study of poverty, although some of those who are employed may not be paid for the work they do, and others may receive insufficient payment to lift them out of poverty. In particular, as discussed further below, in developing countries many people may be engaged in subsistence agriculture, while many women may work unpaid in family businesses.

In contrast to labour force surveys, time use surveys tell us how much time an average person from particular social groups (such as male or female, young or old, rich or poor) spend in an average day or week on sleeping, eating, doing employment-related work, socialising, and doing unpaid care work such as housework and caring for children, the disabled, elderly and ill, etc. These surveys thus provide a good basis for discussing unpaid care work, and in exploring how responsibility for unpaid care work interacts with performance of other activities such as income-earning, as well as how performance of unpaid work varies along a range of individual and social characteristics.

The interest in unpaid care work from a poverty perspective lies firstly in the interplay of paid work and unpaid care work, in that the burden and time and locational restrictions of unpaid care work might prevent particular groups from earning as much as they might otherwise. The combined burden of paid work and unpaid care work also limits the time that those providing care have for self-care, rest and leisure. Thus across all six countries covered by UNRISD's Care Project, the average time spent by women on paid and unpaid work combined is greater than the average time spent by men. This means that the average time spent by women on "non-productive activities" (learning,

social and cultural activities, mass media use, and personal care and self-maintenance) is less than the average time spent by men. The locational restrictions of unpaid care work meanwhile limit the extent to which caregivers can engage in public life and decision-making.

In addition, the fact that unpaid care work contributes to well-being raises the question as to how it should be factored into measures of poverty if we understand poverty as extending beyond a simple monetary measure. For example, if we adopt a human development approach that factors health and educational access or achievement into the measure of poverty, do we not need to factor in the contributions that unpaid care work make to health and education (or cognitive development)? This raises the issue of what happens when insufficient care is available. It suggests that while on one hand the need to do unpaid care work may limit the possibilities of engaging in income-earning activities and thus increase poverty, on the other hand the need to engage in income-earning activity may restrict the amount of time available for unpaid care work, and thus diminish the well-being of household members unless enough is earned to afford paid alternatives (for example, domestic workers, crèche, take-out food, laundromats) to substitute for unpaid care work. There is thus a two-way interaction between unpaid care work and poverty.

Defining Care

There are many different definitions of care, and different definitions will be appropriate for different contexts and for different types of investigation. This paper focuses primarily on the types of care examined for the UNRISD Care Project when analysing the data from the time use surveys. In so doing, the paper focuses primarily on unpaid care, rather than – for example – the paid care done by nurses, employed workers in old-age homes, paid "volunteers" in home-based care projects, and paid domestic workers and "nannies". As shown below in respect of domestic workers, however, the presence of a paid domestic worker in a household can reduce the need for household members to engage in unpaid care. More generally, a separate paper by Budig and Misra commissioned for UNRISD's poverty report will explore the "care penalty" – the extent to which paid care work receives less remuneration than paid non-care work even when other characteristics of the job, such as level of qualifications and experience, are similar. Paid and unpaid care work thus impact on each other.

UNRISD's Care Project utilises definitions that draw on the System of National Accounts (SNA) that defines the international rules for calculating gross domestic product (GDP). These rules distinguish between (a) production activities that fall within the SNA "production boundary" and that must be included in the calculation of GDP, (b) productive activities that fall outside the boundary and should therefore not be included in the GDP calculation, and (c) non-productive activities such as sleeping, eating, socialising and learning. It is the second of these categories that constitutes "unpaid care work", and that encompasses unpaid production of services for one's own household or the community (See Razavi, 2007).

Unpaid care work thus includes housework ("household maintenance"), cooking, shopping and gardening as well as caring for one's child, aged parent, or a relative with AIDS. It also includes assisting neighbours, on an unpaid basis, through doing similar tasks.

This paper also follows the UNRISD Care Project in distinguishing between unpaid care work in general and "care of persons". The latter excludes tasks such as general

housework so as to focus attention on activities that are done more specifically with or for individuals. Care of persons includes direct care, such as feeding a child or elderly person, or changing diapers, as well as indirect care, such as supervising the activities of vulnerable or dependent people.

It is generally acknowledged that care of persons – and particularly indirect care – is under-reported in time use surveys (Ironmonger, 2005). Under-reporting is exacerbated when, as in many surveys, simultaneous activities are not adequately captured as care is generally perceived to be a "secondary" activity when more than one activity is done at the same time. Among the six countries studied here, Argentina, South Africa and Tanzania paid more attention to capturing simultaneous activities, although all six countries made some provision for these activities. While acknowledging the problems, we use the available data to explore patterns across poorer and wealthier households and individuals.

What Might We Expect?

What relationships do we expect to find between unpaid care work and poverty? There are a range of hypotheses that one can advance in this respect.

Firstly, one might expect that where an individual does more care, they will have less time and opportunity for income-earning work, and would thus tend to be poorer. In contrast, however, one might argue that where a person has more dependants (and thus more people needing care), they will also feel more pressure to earn money. Expressed differently, dependants create a need for both more care work and more income-earning work from those who care for them i.e. care is needed in physical, emotional and financial terms. Where there is only one adult in a household with dependents, the adult will need to find a way to provide both financial and physical care. Because time is a finite resource (there are only 24 hours in a day, and different activities such as care and paid work often cannot be done simultaneous, among others because they take place in different locations), the increased time devoted to paid work may restrict the time available for unpaid care work, and thus diminish the well-being of household members.

Unfortunately, much of the analysis of data for developed countries restricts analysis to married, or even dual-earner, couples so as to reduce the number of possible confounding factors. Such analysis is not particularly helpful for countries such as South Africa, where only 40% of households contain one married man and one married woman (some of whom may not, in fact, be married to each other, and many of whom may not be earning), while 45% contain no married adults at all. Even in Tanzania, only 54% of households contain one married man and one married woman, with a further 35% with no married adults at all (own calculations on South Africa's 2006 General Household Survey and Tanzania's Integrated Labour Force Survey of 2006.)

There is, however, some evidence from more developed countries on the dual burden borne by single parents. Thus Bittman et al (2004: 133) find that single mothers in the USA spend more time with their children than mothers with a cohabiting partner, and suggest that they might do this to compensate for the absence of the second parent. Budig & Folbre (2004: 55) point to the juggling of paid work and unpaid care work that is required on the part of single parents, and note that they are often employed in low-wage work with non-traditional hours of work.

Secondly, one might expect that those who live in poorer neighbourhoods, or in rural areas, will tend to have less money (and thus be poorer), but also have fewer facilities

and less infrastructure and tools, resulting in unpaid care tasks – and particularly those that most involve drudge work rather than care of persons – taking longer than it would otherwise. In addition, as discussed further below, poor households are likely to be larger in terms of number of members and, in particular, in terms of number of children. This might increase the amount of unpaid care work that needs to be done per household except to the extent that older children can care for younger ones in a way that is not possible in single-child situations. Again here, the financial pressure and care pressure intersect, as the children will create the need for care but have less ability than adults to provide either financial or other care. Where the children do provide unpaid care, this could affect their ability to attend school and do schoolwork, resulting in lower education, lesser earning ability, and poverty in future years.

Thirdly, one might expect that wealthier, cash-earning woman, would be more able to pay for a domestic worker or buy care in other forms, such as creches. Again here we might expect that those who are wealthier thus bear a lesser unpaid care burden. In this area, however, there is some conflicting evidence from more developed countries. Thus Bittman (2004:231) notes that in Australia, increasing use of childcare centres has gone hand-in hand with an increase in the time that mothers and fathers spend in direct care of, or activities with, their children. This study and others (Bittman et al, 2004) suggest that more educated people (who are often also wealthier) tend to spend more time on "quality" care but less time on the drudge work. The care work of wealthier employed women thus might increasingly resemble the care work of men, "cherry-picking" the more enjoyable direct interaction and leaving the drudge work for others.

In relation to less developed countries, Franzoni (2005: 10) investigates the relationship between social status and the amount of unpaid care work done by women. She uses level of education as the indicator of social status for Mexico, poverty for Nicaragua, and socio-economic status for Uruguay. All her findings suggest that less well-off women tend to do more unpaid care work than those who are better off, but the pattern is reversed in respect of care of children. Thus:

- For preparation of meals, Mexican women with no education do 16.2 hours per week while those with one or more years of secondary education do 8.2 hours. In Nicaragua, where the analysis is only for female heads of household, those in extreme poverty record 2.5 hours while the non-poor record 2.2 hours.
- For care of children, Mexican women with no education do 9.5 hours, while those with secondary education do 14.5 hours. In Nicaragua, the survey records 15.4 hours and 17.5 hours respectively for those in extreme poverty and the non-poor.

Fourth, and focusing in on individual earnings, one might expect that countries with a relatively small earnings gap between men and women would have a more equal gender division of paid and unpaid work. However, a four-country comparison by Pacholok & Gauthier (2004: 215-6) does not find support for this hypothesis. In particular, they find that Canada has the largest gender earnings gap of the four countries and Sweden the smallest, but the division of labour in dual-earner families is more unequal in Sweden than in Canada.

The last hypothesis raises the question as to whether we should be measuring poverty at the individual or household level. It is individuals who do care, rather than households. And across countries and cultures, it is predominantly female individuals rather than male individuals who do care. Yet poverty is generally, and more easily, measured at a household level as most surveys define a household as the entity that brings together people who pool resources and "share the same pot".

The problem with a household-level measure is that the available resources in the "pot" are not necessarily shared equitably between household members. In particular, it is likely that those who bring money into the household have a greater ability to claim more than their fair share. This has a gender bias to the extent that men are more likely than women to be doing paid work and, when they do paid work, tend to earn more than women.

An alternative approach is to use personal income, which is usually mainly earned income. The problem here is that it is unlikely that there is no sharing at all in a household. Thus those who are classified as very poor because they report zero personal income, will not necessarily be poor in real terms. For children, in particular, personal earned income is clearly not a good indicator of well-being or access to resources. Indeed, it is likely to be children from poorer households who are forced to seek work, and higher personal income of children would here be an indicator of poverty rather than well-being. In the analysis which follows, household income is used more often than personal income, but there are some instances where the latter is used.

The paragraphs above have suggested a range of possible links between unpaid care work and poverty. The links relate primarily to the supply side of care i.e. whether poorer and richer people do more or less care. There are also questions on the demand side. For example, as a person becomes older, they become less able to earn money (and thus poorer), but also tend to need more care. Similarly, those who are ill – and especially those with chronic illnesses – will be less able to earn money (and thus poorer) and need more care than the average person. Time use surveys are not ideal instruments for exploring the demand side, and the paper thus focuses on supply.

Profile of the Six Countries

Before exploring time use and poverty in more detail, it is useful to have some idea of the context in the six countries covered by UNRISD's Care Project.

Of these six countries, Argentina and Korea are classified by the United Nations Development Programme as "high" human development, India, Nicaragua and South Africa as "medium" human development, and Tanzania as "low" human development. Table 1 gives basic indicators of development and poverty for each of the six countries (United Nations Development Programme, 2007: 229-240). The table reveals that all countries except South Africa saw noticeable improvements in their human development index (HDI) between 1995 and 2005. South Africa's poor performance is explained by the HIV&AIDS epidemic and its impact on longevity, as life expectancy is one of the components of the HDI. Nevertheless, Tanzania showed an improvement over the period.

The ranking in terms of gross domestic product per capita (GDP pc) does not match the ranking on the HDI, suggesting that some countries are using the available wealth in ways that are more conducive to human development and, in particular, better health and education among citizens. Thus Argentina records the highest GDP per capita, but the Republic of Korea ranks higher in terms of human development. Similarly, South Africa records the third highest GDP per capita, but has lower HDI than Nicaragua, whose GDP per capita is only 33% that of South Africa. These apparent contradictions are explained both by the way in which the countries use the available resources, and by the distribution of wealth and resources among the population i.e. the degree of inequality. The estimates of the percentage of the population living on less than one US dollar per day ranges from less than 2% for Korea, to 57.8% for Tanzania. Again, however, the relationship between GDP per capita and poverty is not simple. Thus Nicaragua has a larger proportion of its population living in poverty than India, despite

the latter's lower GDP per capita. These apparent contradictions again suggest different levels of inequality across the six countries.

Table 1: Key development and poverty indicators for the six countries

	Argentina	India	Korea	Nicaragua	S Africa	Tanzania
HDI 2005	0.869	0.619	0.921	0.710	0.674	0.467
HDI rank	38	128	26	110	121	159
HDI 1995	0.836	0.551	0.865	0.637	0.745	0.419
GDP pc	25,514	3,452	22,029	3,674	11,110	744
<$1 per day	6.6	34.3	<2	45.1	10.7	57.8

With these macro indicators as background this section describes the situation in respect of employment and personal and household income. The information presented is drawn from research papers produced as part of the UNRISD Care Project and is based primarily on the time use surveys. It thus, in effect, presents the profile of the populations covered by these surveys. In India, the analysis was restricted to those age 10 years and above because of the poor quality of data for younger children. For Nicaragua and Tanzania the analysis of participation rates is based on those aged 18 years and above.

In all cases, the populations covered by the survey differ from the overall population of the country to the extent that the youngest children are not covered. In the case of Argentina, as noted above, the time use survey was restricted to the City of Buenos Aires. Beyond the age restriction, however, the samples are largely representative of the populations. And the age restriction is of less importance for this study than it might have been for some others given that the youngest children are unlikely to be engaged in major income-earning activity or in substantial care work.

The instruments

The comparative analysis of the country situations is constrained by the nature of the instruments used, and the differences in the approaches. These differences need to be borne in mind when interpreting the patterns reported below. The patterns reported below need to be seen as giving broad indications rather than exact comparisons between countries.

Of particular important for the purposes of this paper, the time use surveys in the different countries differed in the extent to which they collected information on income or expenditure, the most common indicators for measuring poverty, as well as the questions used for this purpose.

Income is notoriously difficult to capture accurately in surveys. Firstly, many respondents will feel wary of reporting their income accurately, especially when the survey is conducted by government, for fear that this might result in higher tax. Secondly, income can fluctuate significantly from week to week and month to month in developing countries with large informal sectors.

While each country almost certainly has other surveys which measure income and expenditure in various ways, for the purposes of this paper we focus on the measures found in the time use surveys so as to be able to link the time use and poverty situation for particular individuals and households. We note, however, that the income questions in the time use surveys are generally simple, and somewhat crude, so as to avoid a large burden on this topic in addition to the relatively large burden of the time use questions.

Among the important differences across countries is the unit for which information was gathered, namely individuals or households. Where individual income was collected, the question arises as to whether this included all income or only earned income. A second important factor is whether income is reported in terms of the exact number of dollars, pesos or rupees, or instead in terms of brackets (for example, less than 50,000 shillings, 51,000-100,000 shillings, etc). The latter approach restricts the type of analysis that can be done. Where the measurement is in terms of brackets, the analysis can only compare the situation of discrete groups – those above or below a certain income cut-off. This analysis cannot distinguish between those who are only slightly below or above the cut-off, and those who are further below or above. Where the measurement gives the exact number, correlation can show more accurately how time use changes with gradual changes in income.

These considerations are important in relation to the Tobit estimations that were done in each country. Tobit estimations are a form of regression analysis. Regression analysis estimates whether, and to what extent, a dependent variable (such as minutes of time spent on care) changes as a result of changes in a range of independent variables (such as sex, age, income). Tobit estimations are designed for a situation when the dependent variable (minutes of time in this case) has an upper and/or lower limit. In the case of time use data the lower limit is 0 (zero) as a person cannot spend fewer than zero minutes on a particular type of activity. The Tobit procedure estimates the probability of being at the lower (or upper) limit and uses this estimate to correct the general linear regression model.

Details of income and expenditure questions in the six country surveys

The Argentinian survey collected information on both personal and household income. In both cases, the amount is recorded in number of pesos. For personal income, information was collected on all sources, but earned income is considered more reliable than the information on other sources. The Tobit estimations (see below) used earned income from main occupation.

In India, there were no questions related to income. However, the questionnaire included a question on average monthly household expenditure measured in the number of rupees rather than in terms of 'brackets'. A measure of average monthly per capita expenditure is also available, equivalent to the total average divided by the number of household members.

In addition to income, the India report includes analysis by size of agricultural land holding. This is a useful alternative way of measuring wealth (or poverty) in a country which is predominantly rural and where many households do not have substantial cash incomes. The report distinguishes in the analysis between those with no land, those with small and medium-sized landholdings (0.1 to 4 acres), and those with larger holdings.

In Korea, time use surveys were conducted as stand-alone investigations in both 1999 and 2004. Personal income – including income from all sources – was reported in the 2004 TUS but not in the earlier 1999 TUS. The 2004 TUS captured personal income in terms of ten income brackets. Income was not, however, used in tabulations of time use or when doing the Tobit estimations.

In Nicaragua, the time use survey was administered as a model of the Encuesta de Medición del Nivel de Vida (Household Living Standards Survey) of 1998 and thus has quite detailed income information. Both personal and household income measures were obtained. Personal income was restricted to earned income from main and secondary occupations, but includes income of the self-employed and employers as well as that of employees. Household income covered monetary income in respect of rentals, scholarships and bursaries, family assistance, child support, and pensions, as well as irregular income, such as inheritance, received during the last year.

In South Africa, both personal and household income were measured. For personal income, which was meant to encompass all sources, there were six brackets, including one specifying zero personal income. For household income there were eight brackets.

In Tanzania, the time use survey was a module of the Integrated Labour Force Survey of 2006. The household section of the questionnaire asked about aveage household monthly cash income from all sources, and provided six income brackets for responses. For employees, the questionnaire asked for gross cash income, while for self-employed outside of agriculture it asked for gross income, expenses and net income in actual number of shillings. Unfortunately, over half of households fell into a single bracket – the lowest. This extreme clustering restricts the possibilities in terms of analysis.

A further limitation of the Tobit estimations is that they imply that causation runs in only one direction i.e. that it is the interaction between the various tested factors that determines the amount of time an individual spends on unpaid care work. In reality, causation can run in both directions for at least some of the factors. The amount of time spent on unpaid care work will obviously not influence the person's gender or age. The amount of time spent on unpaid care work could, however, influence the work status of the individual and the income earned, both of which are closely linked to poverty status. Unfortunately, it is not easy to think of an instrumental variable that would correct for the resultant bias. Instead, we must remember that while the sign of the coefficients are unlikely to change, the magnitude of the effects might be exaggerated.

Income profiles

In addition to restrictions imposed by the instruments, and the very different levels and distribution of income in the six countries, we are restricted in this paper by the way in which the information was analysed and presented in the six country papers. This includes differences in the measures used as well as differences in age groups covered. The indications presented here are nevertheless useful in highlighting various issues that need to be borne in mind when reading the remainder of the paper. In particular, for several countries we point to the possibility of confounding factors i.e. factors which are correlated with income so that an apparent correlation between unpaid care work and income might instead in reality reflect a correlation between unpaid care work and the third factor.

Given the differences in presentation, the profile for each country is presented separately.

In Argentina, tabulations are presented in terms of per capita family income distribution. The brackets used for this are roughly equivalent to quintiles for the population of Argentina as a whole. Table 2 reveals that, because Buenos Aires is wealthy relative to the total population, the first (lowest) bracket contains only 13% of the sample population aged 15-74 years, and the last (highest) contains 24% of the population.

Table 2: Distribution of population 15-74 years old by sex and per capita family income quintile, Buenos Aires

	Total	Women	Men
Quintile 1	13	14	11
Quintile 2	21	22	19
Quintile 3	21	20	21
Quintile 4	22	22	21
Quintile 5	24	22	27
Total	100	100	100

There are further differences in the distribution across quintiles between households with differing composition. Thus one-person households have only 1% in the bottom quintile and 58% in the top quintile, while for extended families, 28% are in the bottom quintile and only 2% in the top quintile. Households containing children aged five years or less are also more likely than others to be in the bottom quintile. In addition, in poorer countries, children tend to account for a larger proportion of the total population. In Tanzania, for example, there are 0.43 children under the age of 7 for each person aged 15-74 years, compared to 0.25 young children per adult in South Africa, and 0.10 young children per adult in the Republic of Korea. This is very relevant for our analysis of unpaid care work because, as discussed below, the presence of young children is one of the strongest predictors of time spent on unpaid care work. Any apparent correlation with income could thus to some extent reflect a correlation with household composition.

The Argentina paper does not present tabulations in respect of personal income, but does include this factor in the Tobit estimation.

In India, the distribution of sample households by monthly per capita expenditure is presented separately for rural and urban households, with different brackets for the two geographical areas. This is done because of the very different levels of cash expenditure in the two areas. In rural areas, for example, Table 3 shows that over half (55.1%) of households record monthly per capita expenditure of Rs 400 or less, while this is the case for only 16.9% of urban households. Unfortunately, Rs400 is the only cut-off that is used for both rural and urban areas. The very different income distributions for rural and urban alert us to the fact that any patterns found in respect of care and poverty for this country must be carefully examined to determine to what extent it is rurality that shapes the patterns rather than income.

Table 3: Distribution of sample households by monthly per capita expenditure, India

Rural	
Less than 200	9.6
201-400	45.5
401-600	28.2
601-800	9.3
800+	7.4
Urban	
Less than 400	16.9
401-700	31.5
701-1000	27.2
1001-1400	14.4
1400+	10.2

The Korean and South African reports include tabulations by sex of the respondent and personal income. For both countries, there are clear gender patterns. Thus in Korea, 34% of male and 61% of female respondents reported no personal income, while 10% of males but only 1% of females report personal income of 3,000 won or more. In South Africa, Table 4 reveals similar proportions (33% and 34%) of male and female respondents reporting no personal income. However, 24% of male but only 15% of female respondents report personal incomes of R1,000 or more per month. In both countries females are at a disadvantage, but at the lower end this difference is less evident for South Africa.

Table 4: Distribution of sample by personal income and sex, South Africa

	No cash	1-500	501-1000	1000+	Total
Male	33	30	14	24	100
Female	34	36	15	15	100
Total	33	33	15	19	100

The difference in male and female incomes at the lower end cannot be explained by differences in employment patterns in the two countries. In both countries the female employment rate is substantially lower than the male employment rate (67% and 47% in 2004 for Korea, and 50% and 37% for South Africa). Nevertheless, far more Korean females than males report no income, while in South Africa the percentage of males and females reporting no income is similar. One part of the explanation for South Africa not having a real difference in the percentage of male and female with zero personal income could be the government grant system, in that the old age grant and all the child-related grants have far more female than male beneficiaries.

The household income distribution for South Africa shows a similar, but less strong, pro-male bias. Thus while 28% of males lived in households with reported monthly income of R1,800 or more, this was true for only 25% of females. This finding might seem surprising given that most households tend to include both males and females. The pattern could, at least in part, be a legacy of apartheid as during the apartheid era African women faced far greater restrictions on moving out of the impoverished rural households to the wealthier "white" cities. Still today, adult women are over-represented in the population of the poorest rural areas.

In Nicaragua the tabulations are presented in more or less exact household income quintiles, with the first quintile covering incomes of C$410 or less, the middle quintile covering the range C$955-1,612 and the fifth quintile including households within incomes of C$3,000 or more. The Nicaraguan report notes that in 1998 the national poverty line was estimated to be C$355 per person while average household size stood at 5.4 individuals. Thus, an average household required monthly monetary income of C$1,917.00 or more to cover its basic consumption needs. All households in the first two quintiles as well as some in the third quintile are thus likely to be poor.

In Tanzania, Table 5 shows that over half of the sample was found to live in households falling in the lowest income bracket of less than Tshs. 50,000 per month. This finding holds whether the analysis is conducted on the full sample of respondents aged five years and above, or restricted to adults aged 18 years and above. Again, there is some evidence of gender inequality, in that 51% of adult male respondents lived in these poorest households, compared to 56% of adult females. In Tanzania, we cannot blame the pattern on apartheid.

Table 5: Distribution of sample by household income and sex, Tanzania

	under 50,000	50,000-99,000	100,000- 199,000	200,000 plus	Total
	All				
Male	53	28	10	9	100
Female	56	27	10	7	100
Total	54	28	10	8	100
	Adults				
Male	51	29	11	8	100
Female	56	26	10	7	100
Total	54	28	11	8	100

Employment, Income and Care

Given that employment is a major source of income, it is useful to consider the patterns in respect of employment and care as well as those in respect of income and care. In looking at employment it goes without saying that participation in SNA work should be higher among those who are employed than those who are not. We therefore focus our attention on unpaid care work and care of persons rather than on SNA work when looking at employment.

The sections of the country papers drawn on in this part of the paper tabulate gender and other variables (such as employment or income) simultaneously, so as to be able to compare male and female engagement in care across different categories of that variable. We can thus compare, for example, whether engagement in unpaid care work correlates with an increase in income or employment for both women and men, or an increase for one sex and decrease for the other. We can also compare the extent of the change in engagement with changes in income for men and women.

The discussion focuses on participation rates i.e. the percentage of men and women in a particularly category who engage in care work. The country papers also present information on the average length of time spent on care work. Unfortunately, these measures are not easily comparable across countries as some papers use mean population time (total time for a group divided by the number in that group, whether or not they engage in the activity) while others use mean actor time (total time for a group divided by the number in that group who actually did that activity). For the purposes of this paper, the participation rate gives a good indication of the direction and size of trends.

Income

For Argentina, the rate of participation in SNA work increases consistently across the income quintiles, although the rate is lower for women than men for each quintile. Thus Table 6 shows the male rate increasing from 41% in the lowest quintile to 73% in the highest quintile, while for women it increases from 23% to 43%.

Table 6: Rates of participation in SNA work, unpaid care work and care of persons, by sex and per capita family income quintile, Argentina

	SNA work			Unpaid care work			Care of persons		
	Total	Women	Men	Total	Women	Men	Total	Women	Men
Quintile 1	31	23	41	90	96	80	54	66	35
Quintile 2	40	28	54	84	93	70	27	26	29
Quintile 3	47	36	61	86	95	76	25	32	18
Quintile 4	53	45	62	87	95	77	25	32	16
Quintile 5	57	43	73	81	90	72	14	17	11

Rates of participation in household maintenance show much less variation across quintiles, with seven percentage points at most between the lowest and highest rate for both women and men. There is also not a clear monotonic pattern. Among women, the participation rate is between 93% and 96% for all but the fifth quintile, for whom it is 90%. This could reflect a greater likelihood that a domestic worker is employed in the wealthiest households. Among men, the participation is lowest for the second quintile. The reason for this is not clear.

For care of persons there is a clear and sharp pattern that goes in the same direction for women and men, but in the opposite direction to that recorded for SNA work. Thus for women, the participation rate falls from 66% for the first quintile to 17% for the fifth

quintile, while for men it falls from 35% to 11%. These patterns can be partly explained by the fact – pointed out above – that the wealthiest households are more likely to be one-person households, and there would thus not be a child needing care. The pattern contradicts that noted above for developed countries such as Australia. However, much of the analysis in developed countries is restricted to particular households, such as dual-earner, and the pattern for Argentina would almost certainly be different if a similar restriction was imposed.

For India, Table 7 does not reveal any obvious pattern in participation rates for rural women and men in terms of SNA as size of landholding changes. In urban areas, however, both men and women in households with large holdings are more likely than those with less land to do SNA work. The size of this group is, however, probably small. For unpaid care work, the participation rate in rural areas falls for both men and women as the size of the landholding increases. This accords with our hypothesis that those who are less well-off, and likely to have access to fewer services, facilities and aids, do more unpaid care work. For urban areas, there is very little change in the participation rate for women across size of landholding, while the rate for men is lowest among those with small holdings and highest for those with no land.

For both rural and urban men, there is – counter-intuitively - a decrease in the participation rate in SNA work as household income increases. The decrease is, however, very small. For women, the decrease is much clearer, at 12 or more percentage points difference between low-income and high-income women. For both women and men, the participation is higher in rural than urban areas across all income groups. This suggests that individuals from poorer households are forced to work in a way that the wealthier are not. This work is not, however, necessarily rewarded well with income.

Table 7: Rates of participation in SNA and unpaid care work by monthly per capita expenditure, India

	Income level	Male	Female	Male	Female
SNA	Low	84.4	77.9	74.1	49.2
	Middle	84.7	75.6	74.0	37.0
	High	82.6	64.0	73.5	37.2
Unpaid care work	Low	48.2	91.9	48.0	91.3
	Middle	47.4	93.7	52.4	91.1
	High	45.2	92.8	58.6	92.6

For participation in unpaid care work, there is no clear pattern in rural areas, or for urban women, but for urban men there is a noticeable increase in participation as income increases. Thus 48.0% of men from poor households participate, compared to 58.6% from the high-income households. Participation rates in unpaid care work are generally similar for urban and rural areas. The only exceptions to this pattern are the wealthier urban men. The reason for this pattern is not clear, although the fact that shopping is a component of unpaid care work might be part of the explanation as those in urban areas are probably more likely to engage in this activity. It could also be that the wealthier men, who are also those more likely to have higher education, are more open to challenging traditional gender patterns.

In Nicaragua, for men, Table 8 shows a decrease in the participation rate for SNA work among the population aged 15-64 years as household income increases. Again, this suggests that poorer people might be forced to work. For women, in contrast, the participation rate increased from 16.2% among the poorest quintile to 44.6% among the

wealthiest quintile. When the focus is restricted to paid SNA work, the participation rate increases for both women and men with increases in household income, with a much sharper increase for women (27.7 percentage points) than for men (7.0 percentage points).

Table 8: Rates of participation in SNA, paid work, unpaid care work and care for persons by income quintile, Nicaragua

	SNA		Paid work		UCW	
	Male	Female	Male	Female	Male	Female
Quintile 1	84.4	16.2	55.3	7.2	67.2	94.8
Quintile 2	76.8	27.8	59.5	21.2	56.9	93.4
Quintile 3	72.8	32.6	61.1	26.9	52.2	93.0
Quintile 4	71.0	39.4	60.7	33.8	45.5	89.0
Quintile 5	73.0	44.6	62.3	34.9	40.0	83.6

For both women and men in Nicaragua, there is a clear decrease in the participation rate for unpaid care work as household income increases. This is in accordance with our hypothesis above. For this type of work, the decrease is much sharper for men (27.2 percentage points) than for women (11.2 percentage points).

In South Africa, participation in paid work increases markedly for both women and men in line with increases in personal income. This is as expected. The patterns in respect of care of persons are less clear. Among men, those in the top income group are more likely than others to participate, but among women the participation rate fluctuates with no clear pattern. Among men, the pattern again suggests that wealthier and more educated men might be more prepared to engage in work that other men might consider "women's work". It could also be that the higher-earning men are more likely to be living with their children.

Table 9: Prevalence of person care and paid work by personal income and sex, South Africa

	Sex	No cash	1-500	501-1000	1000+	Total
Person care	Male	5	4	6	10	6
	Female	28	32	25	33	30
	Total	17	20	17	19	19
Paid work	Male	9	26	43	70	35
	Female	6	22	25	61	24
	Total	8	24	33	66	29
Both	Male	1	1	3	7	3
	Female	2	7	6	20	7
	Total	1	4	5	12	5

When we look at household, rather than personal, income in South Africa, there is again some increase in participation in person care among the wealthiest, but a fluctuating pattern for women. The highest rates of participation in SNA work are found among the wealthiest households for both men and women. However, men in the poorest households are more likely to engage in SNA work than those in the second "quartile". It could be that some of the second quartile households reach this level of (very relative) "wealth" through receipt of old age and disability pensions.

In Tanzania, men and women in wealthier households are markedly more likely than those in poor households to do SNA work. For care of persons, both men and women in

the wealthiest households are less likely to engage than their poorer counterparts. This could partly reflect the fact that wealthier households are less likely to contain children.

Table 10: Prevalence of person care and paid work by household income (Tshs 1000) and sex, Tanzania

	Sex	<50	59-99	100-199	200+	Total
Person care	Male	40	38	39	33	38
	Female	66	64	66	56	65
	Total	54	51	53	44	52
Paid work	Male	35	56	58	59	46
	Female	23	35	37	39	29
	Total	28	45	47	49	37
Both	Male	13	22	22	20	18
	Female	15	22	23	24	18
	Total	14	22	22	22	18

Across the six countries we thus find substantial variation in patterns for engagement in both SNA and unpaid care work. And the pattern for men, as often as not, differs from that for women. There is some support for the contention that engagement in unpaid care work decreases for both women and men as income increases, but the evidence is far from conclusive. Such a decrease could be explained by greater access to time-saving devices such as washing machines, better access to basic services such as electricity, and greater ability to hire others to do the paid work.

Employment

In analysing the patterns in respect of employment, we focus primarily on comparing those who are employed with those who are not. We adopt this approach because in many of the countries, the unemployed group is too small to be reliable.

In Argentina, those who are employed – both men and women – are somewhat more likely than those not in the labour force to do household maintenance. The difference is, however, relatively small – three percentages points for men and seven points for women. At least part of this pattern is probably explained by age – that younger people are both less likely to do unpaid care work and less likely to be employed. For person care, 32% of employed women as opposed to 28% of those outside the labour force participate. Again, this pattern might reflect age more than anything else as the younger women are less likely to have children. Among men, the difference is much greater in that 23% of employed men report some care of persons, but only 7% of those outside the labour force.

In India, in both rural and urban areas employed men and women are again more likely than their non-employed counterparts to do unpaid care work. The difference between employed and non-employed is much larger for men than for women. The reason for this male-female difference is not clear. It could, however, be that women of all ages have very high rates of participation in unpaid care work, whereas younger men (boys) and older men are less likely than “middle-aged” to do this work. Expressed differently, it could be that the gender division of labour is stronger for the young and old than for the middle age group.

In Korea, there is very little difference in participation rates in household maintenance between employed and non-employed men in either 1999 or 2004. For women, in both years the participation rate in household maintenance is markedly lower for the non-

employed than the employed. However, the difference between non-employed and employed narrows from 27 percentage points in 1999 to eight percentage points in 2004. This sharp shift almost certainly reflects the very sharp shifts in participation in household maintenance recorded for children aged 10-14 years and those aged 65 years and above between the two years, but the reason for these shifts among those outside of the traditional economically active age group are not clear. For care of persons, non-employed men are less likely than employed to engage in this type of work, while the pattern is reversed for women.

In Nicaragua, in contrast to the previous two countries, for both men and women participation rates in unpaid care work are lower for those who are employed than for the non-employed.

In South Africa, employed men and women are more likely than the not economically active to do care of persons, but unemployed women (who are a relatively large group in South Africa) are markedly more likely than the employed to do this work. In essence, there is here a division of labour between employed and unemployed women. The pattern for the not economically active could be partly explained by children aged 10 years and above being included, and these children being more likely to be not economically active and also less likely to do care of persons.

In Tanzania, care of persons is noticeably more common for employed men and women than for their non-economically active counterparts. The direction of the relationship is thus similar to that for Argentina and India, but the strength of the relationship seemingly greater.

As with income, the patterns differ across countries in respect of employment. There is more uniformity with employment to the extent that the patterns for men and women tend to go in the same direction. But the direction and the strength of the relationship differs across countries. Age patterns may explain some of these differences, but would not explain all of them.

Tobit Estimations

The preceding section examined how engagement by women and men in unpaid care work varied with changes in income and work status. In this section we focus on the extent of correlation of various factors with the amount of time spent on unpaid care work. As noted above, the analysis should not be interpreted to mean that it is always the tested factors that ‘cause’ the unpaid care work. In some cases the extent of unpaid care work may be influencing the category of a factor into which the individual falls.

Each country team did Tobit estimations, a form of regression analysis, in an attempt to determine the correlation of various factors with the time spent on care. Like other regressions, this approach separates out the effect of different factors. This is especially important in situations where one factor is itself dependent on another factor. For example, a correlation of time spent on care with rurality will generally, in part, be reflecting correlation with household income given that rural households tend to be poorer than richer ones. Further examples of confounding factors have been given above. The Tobit estimation, in effect, ‘controls’ for each of the other factors included in the estimation when calculating whether, and to what extent, a factor correlates with the amount of time spent on unpaid care work.

Each team did a Tobit estimation for unpaid care work as a whole as well as for person care. Some factors were standard across countries. For example, all countries included sex, age, age squared, presence of children in the household and work status, and most included conjugal status. In addition, each team chose further factors that were included in their datasets and that tabulations had suggested might be significant determinants of time spent on care.

Across all countries, gender and presence of children in the household were strongly significant determinants with high coefficients. For almost all countries, gender was the strongest determinant of the amount of time spent on unpaid care work, while presence of children was the strongest determinant of the amount of time spent on person care. The contribution of these factors is not discussed further here, as our primary interest is in the impact of poverty-related factors.

All countries except Korea included some measure of income or expenditure in their Tobit estimations. In most cases, the variable used was a discrete one, separating out individuals from households below a certain income or expenditure level. In Nicaragua, however, the team used the actual income as reported and in natural log form as continuous variables[1], while in Argentina personal income was tested as a continuous variable.

Table 9 shows the results of the Tobit estimations in respect of unpaid care work. The second last row of the table shows the number of variables tested for each country, while the last row shows the number that were found to be significant at the 95% significance level. Korea is not shown in this and the following table as no variables related to poverty were included. "Neg" alongside a particular factor in the table indicates that wealthier households tended to do less unpaid care work, while "Pos" would indicate the opposite. The number following "Neg" or "Pos" shows the ranking of this factor among those found to be significant. For example, for Argentina, household income had the seventh highest coefficient of the 11 factors found to be significant, while personal income was 11th, or last. The abbreviation "ns" indicates that the particular factor was found to be non-significant.

Table 11: Results of Tobit estimations for unpaid care work in respect of poverty variables

	Argentina	India	Nicaragua	South Africa	Tanzania
HH expend		ns			
HH income	Neg: 7		Ns	Neg: 4	Ns
Ln HH income			Neg: 4		
Personal income	Neg: 11				
Total tested	15	11	9	9	13
Significant	11	10	7	8	9

The table shows that, across countries, poverty-related factors were found to be significant in four cases and not significant in a further three. In all cases where there was a significant association, those who were poorer tended to do more unpaid care work. Overall, however, the poverty-related factor tended to have a relatively weak influence, as shown by the low ranking in terms of the absolute size of the coefficient.

[1] 614 cases with zero monetary income were excluded from the Nicaraguan analysis as the log of zero is undefined.

Table 10 presents the results in respect of care of persons. Again, there is a significant association in four cases and no significance in three cases, although the ones that are significant do not exactly match those for unpaid care work. In all cases except India, poorer people again tend to do more care of persons than their wealthier counterparts. For India, the coefficient, although significant, is very small. Even more so than for unpaid care work, the poverty-related coefficients tend to have low rankings in terms of the absolute size of the coefficient.

Table 12: Results of Tobit estimations for care of persons in respect of poverty-related variables

	Argentina	India	Nicaragua	S Africa	Tanzania
HH expend		Pos: 10			
HH income	Neg: 12		ns	Ns	Neg: 7
Ln HH income			Neg: 7		
Personal income	ns				
Total tested	15	11	9	9	13
Significant	14	10	8	8	9

The above results suggest that while there is sometimes a relationship between poverty and the amount of care done, the relationship is generally weak. This finding is not conclusive to the extent that a change in the way poverty is measured, and the variable for which the correlation is done, could change the results. In this respect, we note that for Nicaragua both tables show a significant result for the normal log of household income, but no significance for an untransformed household income measure. This result points to the complications of analysing correlations with income which are caused, among others, by uneven distributions over large ranges of money amounts. Simple analysis that shows no association should thus not be taken as implying that income has no impact on time use.

Where the relationship exists, poorer people do more care work than wealthier ones except in India. We thus have some weak support for one of our hypotheses – that those who are poorer will tend to do more unpaid care work. However, the evidence seems to refute our hypothesis that wealthier people will do more care of persons than those who are poorer.

One reason for this pattern could be that wealthier households are more likely than poorer ones to employ a domestic worker who would then do some of the household work. Thus in South Africa, 17% of households participating in the survey which had incomes of R1,800 or more reported that a person who was not a member of the household bore the main responsibility for housework. In most cases this would have been a paid domestic worker in that Statistics South Africa does not categorise domestic workers as members of the households for which they work. Among all other income groups in South Africa, the percentage in this situation was 3% or less. Similarly, in Tanzania, 24% of households monthly cash income over Tshs 1,000,000 or more included a domestic employee among its members, 20% of those with incomes between R 500,000 and R999,000, but less than 1% of those – constituting more than half of all households – with income of less than Tshs. 50,000 per month.

The Macro Level

The previous discussion has focused on the micro, individual level i.e. the links between poverty and the likelihood of participation in unpaid care work and the length of time

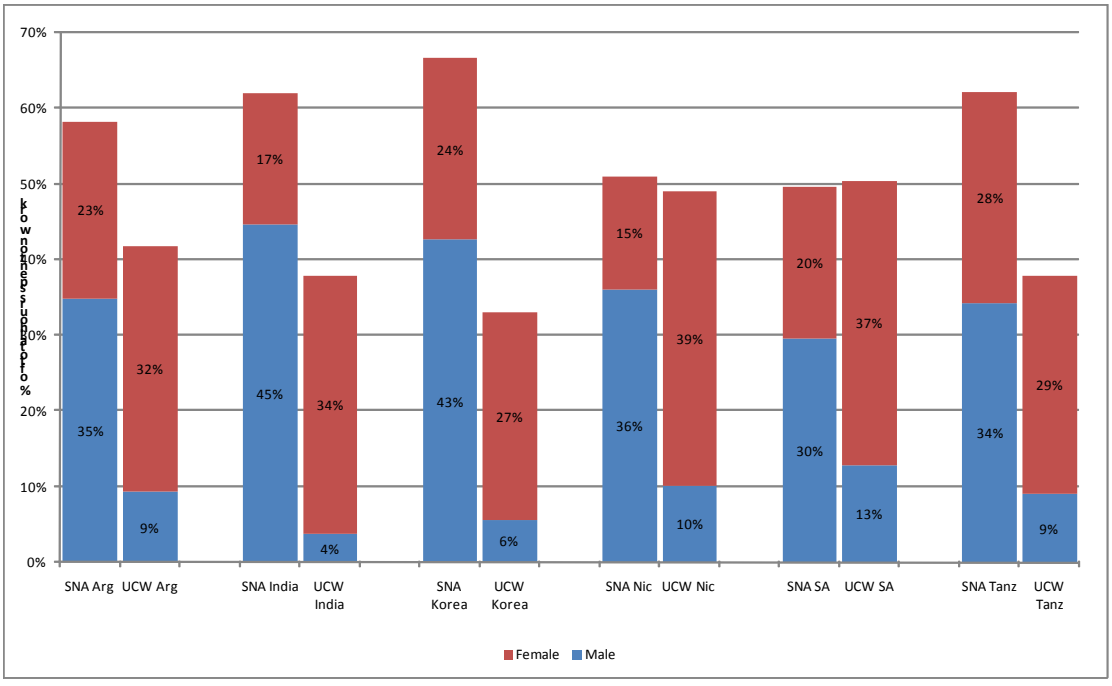
spent in it. At the macro level, we can ask how the amount of unpaid care work done in a particular country affects the poverty level or vice versa, and whether unpaid care work should be taken into account in measuring poverty.

Internationally, GDP – or GDP per capita – is considered a reliable indicator of the relative wealth of a country, while changes in GDP are the standard measure of economic growth. As discussed above, however, the calculation of GDP does not take unpaid care work into account.

Figure 1 gives an indication of the extent to which this approach omits production occurring in each of the six countries. For each country, the two columns together constitute the total hours spent on SNA and unpaid care work by the population. The first column shows the percentage of this total accounted for by SNA work, while the second column shows the percentage accounted for by unpaid care work. Each of the columns shows the percentage done by women (red) and men (blue) separately. For example, for Argentina, women's SNA work accounts for 23% of the total "volume" (hours) of work done, while their unpaid care work accounts for 32% of the total volume. Overall, women thus perform 55% of the total volume of work in the country. As in other countries, while women do more than half of the total volume of work, men do far more SNA work than women. It is thus predominantly women's work that is excluded in the GDP calculation.

The figure suggests that about half of all work is excluded in the GDP calculation for Nicaragua and South Africa. For other countries, it is less, but even in Korea – the "best case scenario" – 33% of work is omitted from the GDP calculation.

Figure 1: Volume in hours of SNA and unpaid care work by sex



There is no clear pattern in terms of poorer and richer countries in the percentage that unpaid care work constitutes of total work. So, for example, Tanzania and Korea – at opposite ends of the development spectrum – both have unpaid care work accounting for a relatively small proportion of total work. This suggests that inclusion of unpaid care work in the GDP calculation would change the current ranking of countries in ways that are not easily predictable.

Some will resist such a change on the grounds that it will prevent comparisons over time. This argument is flawed for two reasons. Firstly, one could continue to calculate GDP excluding unpaid care work alongside the new measure for some years so as to show trends, while establishing the baseline for a new trendline with the revised figures. Secondly, if the current measure is flawed, a trendline based on it will also be flawed.

Another argument against including unpaid care work in GDP would be that the fact that a certain volume of unpaid care work is done does not necessarily reflect well-being. Indeed, to the extent that unpaid care work is more onerous and takes longer in developing countries because of lack of infrastructure and services means that a few hours in a developing country bring equal welfare to many hours in a developed country. One could, however, make a similar argument in respect of some types of production that are included in GDP. For example, the economic activity involved in cleaning up after an environmental disaster and the activity involved in producing weapons are both included in the calculation of GDP, yet the first reflects an attempt to deal with a decrease in well-being, while it is highly debatable whether the second increases overall well-being.

An alternative way of comparing SNA work and unpaid care work is to impute a monetary value to the hours spent on unpaid care work. There are several different approaches that are commonly used for this imputation. These are described in a paper prepared for the UNRISD Care Project which compares the values computed across the different countries (Budlender, 2008). For the purposes of this paper we use the generalist calculations as these are the only ones done for all six countries. The idea behind this approach is to calculate what the individual would have to pay on the market to buy in the services rather than doing the unpaid care work him or herself. The calculation is based on the wages of employees doing similar work to that done in unpaid care work, such as cooking, cleaning, and caring for children, multiplied by the volume of hours worked. The value has a downward bias to the extent that those doing paid care work generally earn less than individuals with similar attributes doing non-care work (Engand et al, 2002). The extent of the downward bias will depend, among others, on the extent of the "care penalty" in the country concerned, on gender inequalities in wages more generally, as well as overall levels of earnings inequality.

Figure 2: Unpaid care work valued at generalist wage as % of GDP

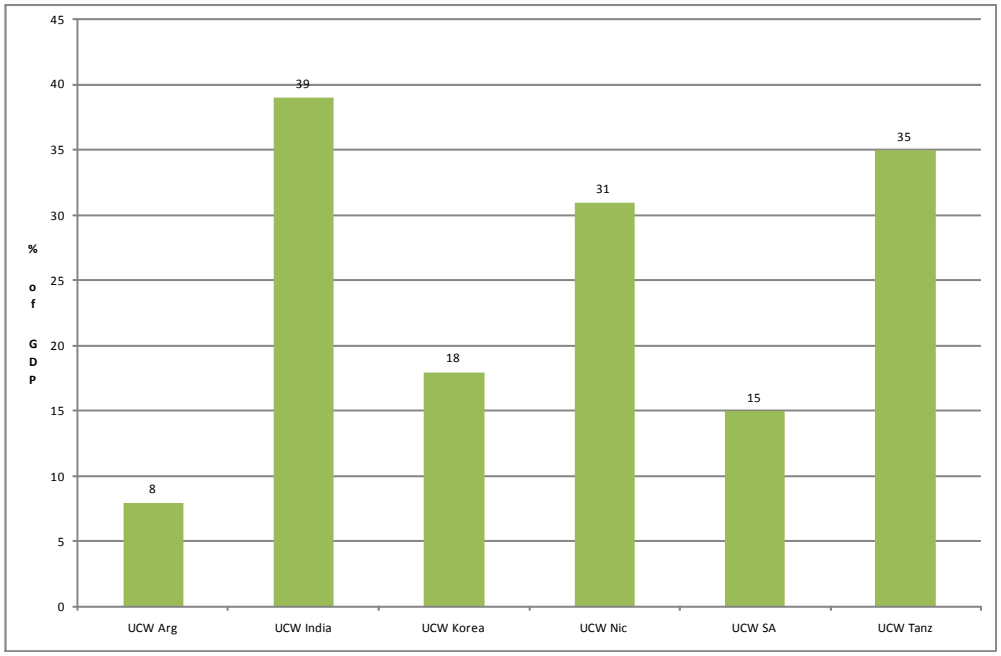


Figure 2 shows the value of unpaid care work as calculated using a generalist wage ranging from 8% to 39% of the value of GDP. Expressed differently, this is the minimum amount by which GDP would increase if unpaid care work were included in the calculation. Here there is a clearer pattern than for volume, with the addition being greater for less developed countries. This then suggests that a revision of the method of calculating GDP might result in less stark differences between developed and developing countries.

As noted above, GDP is used not only for cross-country comparisons, but also for measuring economic growth in a particular country over time. Including unpaid care work here is important if, as is likely, a downturn in economic growth causes some of services that were previously bought on the market to be done, instead, on an unpaid basis by family members. Conversely, if unpaid care work is not taken into account, economic growth (and associated well-being) will be over-estimated as functions that were previously done unpaid in the home are shifted to the market.

GDP measures the wealth of the country as a whole. For the purposes of this paper, however, our main interest is in poverty. For a poverty measure, we need to know the situation of individuals or households. The GDP per capita measure is not sufficient in this respect as it represents an average. A similar GDP per capita could hide very different percentages of the population living below a given poverty line as the latter is influenced by the distribution of the income and wealth of the country among the households.

The analysis presented in a previous section suggests that individuals living in poorer households tend to spend more hours on unpaid care work than those living in wealthier households. We suggested that the reasons for this could include less developed infrastructure, less access to time-saving technology, less access to services, lesser ability to purchase care, larger-sized households, and greater presence of children.

A poverty calculation that took unpaid care work into account by including the value both of cash income and imputed value for unpaid care work would therefore again tend to mute the differences between those who are poor and those who are not. It would result in some who are currently classified as poor no longer being so classified. This does not seem sensible from a policy perspective. It also does not seem right from a moral perspective as essentially one would be holding the "sweat equity" that people – mostly women – contribute in the form of unpaid care work against them. They would both bear the burden of this labour and possibly be excluded from various benefits on account of doing it.

Conclusion

In an earlier section of the paper we put forward four hypotheses.

The six country studies do not provide strong support for the first hypothesis, namely that individuals who do more care will have less time and opportunity for income-earning work. However, as noted above, it could affect the type of work that they are able to do. Single carers, in particular, might be forced to take on work with odd hours, or only be able to do work that can be done from home. Often the types of work that suit single carers will have low pay, few benefits and poor working conditions.

More generally, women tend to do more unpaid care work and less income-earning work than men. Beyond this, however, in some countries employed women and men are more likely than others to do unpaid care work. Our evidence thus might be more

supportive of the statement that dependants can create a need for both more care work and more income-earning work from those who care for them i.e. care is needed in physical, emotional and financial terms.

The six country studies do provide some support for the hypothesis that those who are poorer, and thus more likely to live in rural areas and poorer neighbourhoods, tend to do more unpaid care work. India is, however, an exception to this general pattern. Where the evidence exists to support this hypothesis, the relationship between income level and unpaid care work is weaker than for a range of other factors, such as gender, having a child in the household, age and marital status.

From South Africa and Tanzania, and perhaps from Argentina, there is evidence that wealthier households are more likely to buy in the services of a domestic worker and that this could be contributing to the lower unpaid care burden in wealthier households. We do not find much evidence to support the hypothesis that those who are wealthier are more likely to engage in care of persons. Indeed, in some countries there is clear evidence of a trend in the opposite direction.

We were not able to test the fourth hypothesis (that countries with a relatively small earnings gap between men and women would have a more equal gender division of paid and unpaid work) as we did not have information on earnings gaps in paid work. This hypothesis would not be particularly relevant for countries such as India, Nicaragua and Tanzania where a large proportion of the SNA work done – and particularly that done by women – is unpaid.

At the macro level, there are good arguments for including unpaid care work in calculation of GDP. These arguments do not, however, mean that the value of unpaid care work should be included when deciding who is poor and who is not. If anything, unpaid care work should be seen as an exacerbating factor for poverty – a burden that prevents poor people earning more money and having a good life – rather than the value it contributes being imputed and added to their monetary income.

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