

Intergenerational Transfers in Form of Unpaid Work in Slovenia

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Abstract

Recently the new method called National Transfer Accounts (NTA) has been developed to measure economic flows across age groups. Age groups in which individuals produce more than they consume (prime age adults) are financing age groups whose consumption exceeds their production. The NTA are synchronized with the System of National Accounts (SNA) and as such they ignore production that has a form of unpaid work like cooking, cleaning, childcare etc. There are ambitions and attempts to extend NTA in two directions – to include the value of unpaid work into the analysis and to make NTA gender specific. The former one is a necessary condition for the later one. Females usually provide much more unpaid work than males. By omitting the value of unpaid work we would end up with misleading conclusions that there are huge economic transfers flowing from males to females. By applying the survey data on time use from 2000/2001 we discover that this is also the case in Slovenia. The results confirm the necessity to include unpaid work into the NTA analysis since people devote even more time to unpaid work than to the paid work. We calculate the age profiles unpaid work – i.e. how much of unpaid work people provide at different ages.

1 Introduction

Recently the new method called National Transfer Accounts (NTA) has been developed to measure economic flows across age groups. The NTA introduce age dimension into the System of National Accounts (SNA). Age dimension is becoming increasingly important in the light of rapid population aging that we are facing in developed countries and which will be, according to the population projections, even much more rapid in the next several decades. Age is very important person's characteristic that determines her economic behaviour. In younger ages people consume more than they produce through labour and it is biologically impossible for them to be self-supported. Also, when becoming old most individuals produce through their labour less than they consume, especially in developed countries with mature pension systems where people retire already when still being productive. They spend many years in retirement without being involved in the labour market any more, but still sustaining high level of consumption. This is possible due to the transfers that those two groups of people (with 'lifecycle deficits') receive from the prime-age adults whose production exceeds their consumption (i.e. from individuals with 'lifecycle surpluses').

The NTA comprehensively analyse economic flows from age groups with lifecycle surpluses to age groups with lifecycle deficits. They can be in a form of public transfers (like public pensions, publicly financed health and long-term care), private transfers (most important, parents financing consumption of their children) or asset-based reallocation originating from interactions with assets (for example, taking a loan or receiving interests on capital).

Following the approach of the System of National Accounts (SNA) the basic set of the NTA results omits unpaid family work. Thus, only the production and consumption that are paid are taken into account. For example, if a child is visiting kindergarten or if she is in the care of the baby-sitter, the expenses that her parents have to pay are transfers from parents to the child. However, if those services are provided by child's parents, they do not show up in the SNA or NTA.

By omitting unpaid work from the analysis we are missing a large part of the production and consequently the transfers between age groups. Using the NTA results we can address questions like how much are the cost of caring for the children or cost of taking care of the elderly. However, since a large part of these costs are in a form of unpaid work, current NTA results do not show their actual magnitude since they include only monetized part. Further, since only the paid work is captured but not the unpaid work, international comparison is limited because shares of paid and unpaid work can substantially differ across countries.

In this article we supplement basic NTA results for Slovenia with the unpaid work. We build on the micro data from the latest time use survey for Slovenia conducted in 2000-2001. First, we distinguish activities that are unpaid work from those which are not. We are using 'third party criterion' – whether a person can pay someone else to do some activity for her or not. This rule separates unpaid work from leisure (reading books, listen to the music, traveling, doing sports etc.) and personal care activities (like eating, sleeping etc.).

1.1 Introducing time and gender into National Transfer Accounts

NTA results show how people produce, consume, share and save by age for different nations and times. Since they have added an important dimension to national accounting – age, they have attracted the attention of international organizations, research community and various other users. Recently a growing number of researchers have begun to pose and answer two questions in relation.

- 1) How are time transfers treated in the NTA transfers framework?
- 2) How do age profiles of men and women differ?

These two questions cannot be answered adequately in the current NTA framework. Gender dimension is very important because of the traditional female role which implies that women are usually those who are much more involved into non-market (i.e. unpaid) labour work compared to men. They contribute a great deal to their families, but often in ways that are not monetized. As such, these non-monetized contributions do not form a part of the NTA results at the current stage. By calculating NTA results separately by gender but without taking into account unpaid work it would appear that women are contributing far less to the production than men. It would furthermore appear as if there are huge transfers flowing from men to women. Therefore, providing the results to the first question is also a necessary condition for tackling the second one.

The interest in this research stems from a doubt that current NTA results comprehensively show the transfers among people. Once we include unpaid work, the aforementioned transfers from men to women may not be as large. The value of this production is shared within the household and may thus be regarded as a transfer. In essence, we may start speaking about reverse transfers as women are usually heavily involved in some kind of production. When it comes to working women, including the gender dimension becomes extremely important. The results would allow us to identify possible double shifts in women's schedules – they may work one shift in form of formal job and another one in form of unpaid work after they come home.

Further, accounting for unpaid work within the NTA will also provide better estimates of human capital, costs of child care and the elderly. By neglecting unpaid work we underestimate the actual investments into those age groups. Efforts of the inclusion of time use surveys in NTA accounts are relatively fresh and limited and international comparisons even more so.

Further, by capturing only the paid work but neglecting the unpaid work the international comparison is limited because shares of paid and unpaid work can substantially differ across countries. The differences are big not only between more developed and less developed countries. There are also substantial differences among developed countries of how much people produce inside the households and how much they acquire on the market.

One of the aims of this work is to evaluate transfers flowing from males to females. A better evaluation of those transfers will arise due to accounting for unpaid work. However, it is not just unpaid house work that we need to look at. That would imply that there is a strict division between market work and unpaid house work. There is a grey area in between – an unpaid market work. Such work may focus on two specific cases: the executive spouse case and the family business case. It refers to activities such as helping out in organizing conferences, attending business meetings, socializing with other executives' wives or just lending a helping hand in the family business start up.

Namely, these are subtle activities that do not get paid as they are performed. When it comes to taxation, such employee (for example, the wife of a business owner) gets registered because her pay serves to reduce the firm's income. Thus the executive can indirectly enjoy tax benefits. The business owner's wife never actually gets paid. When it comes to the executive spouse case it can also be argued that there is a transfer because the two are married and an increased income on the side of the husband will be enjoyed by his wife. Unpaid market labour in the family business case though is not limited to the spouse only. It can also be performed by relatives who will most likely not get paid but will still factor in as a formal labour cost in the firm's balance sheets. The described taxation issues have been reported in Canada and the US (Phillips, 2008). In such cases measuring unpaid work will most probably give a clearer picture of the actual transfers occurring between men and women.

1.2 Including unpaid work in accounts: a better overall picture of the size of the economy

Other than the importance of the inclusion of unpaid work within national transfer accounts, factoring in unpaid work within national accounts is an important element *per se*. Researchers have long pointed out the fallacies within the standard accounts, such as the omission of unpaid work, the value of leisure time, investment in human capital, and most recently the environment. It is important to review the traditional income accounting system as the economic environment around us has experienced certain changes, in that economic actors for one spend ever less time in market activities, there is a more speculative reason which concerns the growing importance of non market assets such as the environment and technology, and current measures of national saving and investment are highly defective (Nordhaus, 2000). To some extent, these fallacies have been tackled through the satellite accounts. The idea builds on that initial framework by including the 24 hour schedule and further decomposing it to leisure, market work and unpaid work. Sequentially, the age dimension is added on. The results are then added back to the previous NTA result.

The issue of whether to include unpaid work within national income accounting or not is not solely attributable to recent research. It dates back to the actual creation of the national income accounting systems. One view expresses doubts whether productive activities within the family circle should even be characterized as economic processes and further on evaluated (Kuznets, 1941). Traditionally, household economists in a notion similar to today's feminist economists claimed that the omission of such an element would harm the completeness of the satellite accounts and thus should not be ignored (Reid, 1934).

Accounting for unpaid work is essential for better evaluation of production and consumption within the whole economy. The argument for improvements in national income accounting with the inclusion of unpaid work and time use stems from two concepts in which economists are interested: growth and overall well-being. For example, the OECD's report tries to answer whether GDP growth via greater female labour force participation is attributable to a

rise in productivity (OECD,2011a). Alternatively, it could occur as a consequence of marketisation of unpaid work, meaning that women have switched patterns from unpaid to paid work. Country cross-sectional data suggest the latter option.

If GDP growth occurs because reducing unpaid work and increasing paid work, then well-being gains would be over-reported if GDP growth occurs (Stiglitz et al, 2009). In general, the contribution of unpaid work to well-being is both in terms of current consumption (for example cleaning) and improving future well-being (for example parental investment decisions in raising their children). The ambiguity of the preceding discussion shows the necessity of accounting for unpaid work so as to limit any possible distortions.

1.3 Unpaid work and its role in revealing gender differentials and income inequalities

Other than the merits of unpaid work in national income accounting in providing a better overall picture of the size of the economy, researchers have pointed out to the role that unpaid work plays in providing a better picture of income inequalities, gender differentials and poverty. Unpaid work increases overall consumption of goods and services and represents implicit income (Becker, 1965). On a micro level, income is better estimated once taking time use into account. That is proposed with a full income distribution model (Richardson et al, 1993) which is supposed to provide better accounts for differences in living standards.

Gender inequalities in living standards may be underestimated by conventional income measures, whereas inequalities in personal income and time use contribute most substantially to gender inequality in the full income distribution (Hill, 2009). It follows from the discussion that differences in personal income and living standards between both genders may not be as large as presumed if implicit income is taken into account. Thus, a merit of accounting for unpaid work is that it allows the disentanglement of reasons for gender differences in well-being. For instance, it has been shown that gender differences in time spent on paid work and housework account for a third of the European gender difference in well-being and are thus one of the reasons that women experience lower levels of well-being than men (Boye, 2009).

According to the OECD report on average women work more hours of unpaid work than men (OECD, 2011b). This difference is not specific for developing countries only. Women in OECD countries put on average about 150 minutes more in unpaid work than men. Unpaid work enables economies to grow, but unless it is taken account of, the productive potential is constrained as is well-being. As noted by the OECD Observer (OECD, 2011b), for example, policies that focus on increasing female labour market participation may be blunted unless unpaid work is taken into account. In developing countries the increasing female labour participation and better balance between paid and unpaid work are crucial in tackling poverty.

1.3.1 The broader policy implications of accounting for unpaid work

Addressing unpaid work is essentially important as well as it may contribute to policies that are of greater value to society overall. National economic policies that ignore unpaid work may have detrimental impacts on public policy (Warner M., 2009). As the economy consists of a paid and an unpaid economy and economic policy is targeted on the paid economy, such policies may have unintended consequences on the unpaid economy, thus limiting the effectiveness of any policy (Himmelweit, 2002). Furthermore, accounting for unpaid work is important in assessing the overall costs of care and effectively socializing them. This is essential in a developmental context as women tend to have a greater burden to provide unpaid care which increases gender inequalities – on top of augmented and ever widening income inequalities. Failure to socialize these costs will not work towards an inequality decrease, instead it may even magnify such inequalities. Therefore care and unpaid work deserve more attention in a developmental policy context (Razavi, 2011). Failure to properly evaluate unpaid work contributes to an underestimation of the depletion in social reproduction (attributable to more and more women entering paid work and the forces of globalization) and leads to inaccurate economic models with faulty predictions and misguided developmental policies (Hoskyns, 2007).

Thus, the inclusion of unpaid work is not important only when it comes to improvements in measuring women's income, but it also provides better guidelines to policymakers. Some countries reward unpaid work already. Japan, for example, recognizes the number of years mothers spend at home taking care of their children. The German income-splitting tax system for couples recognizes the work done by full-time homemakers. The earnings of spouses are aggregated and then split into two halves to calculate the tax due for each spouse. The Finns employ a homecare allowance that is paid to the parent who stays at home to care for the children without using state nurseries. Policies of similar success have been introduced in Norway as well. Similarly, the French give financial benefits for full—time parental care at home.

There are broad implications of such policies. For example, one-sided policies that support employment and careers, but ignore productive work done in the family are endorsing marketplace values to the exclusion of family values. Consequently, parents spend ever less time in the household and become ever more work-oriented. This has probably contributed to the decline in fertility in recent years in Europe, and the exceptionally low fertility of Southern Europe (Hakim, 2010). Another example are social security or pension system reforms related to population ageing. Amidst such reforms, it is necessary to review the stance on unpaid work and the actual gender neutrality within the presumably gender neutral policies. Italy, for example, has traditionally provided strong incentives for unpaid work, yet reversed its policies amid reforms in the 1990s in seeking to accomplish gender neutral policies (consequently, removing financial gains for unpaid work). Such gender blind policies may have adverse effects on women's poverty and dependence in old age, unless countered by positive discrimination in eligibility criteria (Corsi et al, 2009).

1.3.2 The double shift and the division of labour

Women may have formal job (paid work) and after finishing it they might continue working at home in form of unpaid work – thus ending up working double shifts as opposed to the single shift of their male partners. Introduced by Hochschild (1989), the existence of the double shift and its magnitude has been subject to debate and opens up further research opportunities.

The double shift could be explained through Becker's view of the specialization and division of labour between couples. Women specialize in unpaid work and men specialize in paid work because specialization is more efficient and serves a household utility maximization role. Men generally specialize in paid work while women specialize in unpaid work because of human capital and biological differences that result in a comparative advantage for each partner in their respective domains (Becker, 1991). It could be said that under this view, gender differences would persist as long as there is a comparative advantage. Assuming the trend of increased paid work by women continues, Becker's view seems to indicate the existence of a double shift. That would occur because women have in unpaid work a comparative advantage. Then, taking on paid work will undeniably lead to a double shift.

However, the existence and magnitude of the double shift is debatable. For example, a gender gap has been identified in the US, showing that women work more hours than men. Furthermore, in the US and Australia the gender gap increases when women are employed, especially notable for the US, as well as when young children are present- especially notable in Australia (Bianchi et al 2009). It could be argued that such studies are biased because they invariably focus on women who are in one of the earliest phases of motherhood, when their children are still young or even babies, so this phase is only temporary within the lifecycle (Hakim, 2010).

Other results suggest that on average women and men across Europe do the same total number of productive working hours, once paid jobs and unpaid household work are added together- roughly eight hours a day. Consistent with the comparative advantage proposition and Becker's view, men do substantially more hours of paid work, whereas women's time is divided more evenly between paid and unpaid work. These results for the UK are repeated in the USA and other countries, despite differences in the length of working weeks and lifestyles. In less developed countries women work more hours in overall. The same applies for the Eastern European countries. The latter is a remnant of the former socialist systems under which women were obliged to do full-time jobs. Sweden, Norway and the Netherlands are known to foster egalitarian cultures. In these countries, it is men who do more productive work in comparison to women (Hakim, 2010).

Including unpaid work into the analysis is important because it allows insight into the division of labour. It may further reveal gender inequalities in terms of each gender's responsiveness to different economic conditions on the amount of unpaid work they put in. If double shift

exists, are they due to adverse economic conditions which force women into working two shifts as the head of the household is already fully employed? Or is it due to the husband's reluctance to help out around the household?

For instance, a study for the South Africa based on time-use data found that during times of economic adversity women increased the amount of unpaid work much more than men. Thus, women predominantly bore the burden of poverty in terms of unpaid work (Kizilirmak, 2009). Those differences do not apply only to the developing countries. A study on the US and Australia found a strikingly low responsiveness of men's unpaid work to women's employment. In essence, men whose wives are full time employed provide less unpaid work than those whose wives are part-time employed (Bianchi et al, 2009).

The effect that this has on women's employment and engagement in market work is not negligible, especially with the increase in the number of children. A study for the American Time Use Survey shows that when more children were present in a household, mothers were less likely to be employed, spent less time doing paid work, and spent more time doing unpaid household work. The time fathers spent in these activities and their labour force participation were less responsive to the number of children living in their household (Krantz-Kent, 2009).

This information is of major importance to the policy makers in designing their policies as well as to the sociologist analyzing broader societal trends overall. As Bianchi et al (2009) propose, the microsociological issue of the division of power within couples is not the only one at hand. There is also the macrosociological one of the possible consequences of policies on women's employment and men's participation in childcare and other unpaid work.

Furthermore, a "whole economy" perspective allows us to review the commercialization thesis of everyday life. The thesis implies that market life is having an ever greater role in our everyday lives and that this tags along with capitalism (Nadin et al, 2010). This may have an effect on well-being as it may signify our estrangement. If we devote more and more time to our market life and limit our non-market life to a bare minimum, it may have subsequent effects on welfare.

Furthermore, the NTA results for paid work (which we have already) show that in Austria people start to earn labour income very early – the earliest among all 23 countries for which NTA results are available by now. In Slovenia, on the other hand, people enter the labour market very late – among the latest of all NTA countries. They also leave the home among the latest of all EU countries. Further, there is still a substantial difference in the level of development among those two countries. While Austria is one of the most developed countries in the European union and worldwide, with GDP per capita 25% above the EU27 average in 2010 (measured in Purchasing Power Standards), Slovenia was still 14% below EU27 average in 2010 (Eurostat, 2011).

All those factors are important for the production, consumption and transfers of the non-market work and for the transfers between men and women. The main value added would then consist in providing a basis for further and better evaluation of such transfers within Slovenia, as well as further and better evaluation of cross-country differences. The basis for disentanglement of welfare or growth differences between these two countries that are otherwise both members of the same international organizations and political clubs, yet differ on so many other scales, becomes crucial. We believe that the extension of NTA with unpaid work may provide further insight into these matters, both qualitative and quantitative.

2 Data and methodology

Measuring unpaid work seems intuitively complex at least from a methodological point of view. Yet, with the development of time use surveys the methodological issue of measuring unpaid work has been ameliorated to some extent. Time-use surveys are surveys that measure unpaid work with the use of a 24 hour diary in which participants are asked to keep track of how they allocate their time and record it appropriately (thus providing details of their activities in terms of other participants, location, time etc.). An alternative to such diaries are questionnaires. It has been shown though that diaries have greater merit in measuring unpaid work as compared to questionnaires (Bonke, 2005). We use the latest time-use survey conducted in Slovenia during 2000 and 2001. Unfortunately, more recent data are not available since this is the only time use survey conducted in Slovenia.

2.1 Data

In the analysis we are using micro-data from the Time Use Survey, obtained from the Centre for Time Use Research. The survey was conducted by the Statistical Office of the Republic of Slovenia in the period from 1 April 2000 till April 2001. Sample size was 4,500 households, out of which 2,364 households responded. It was 24 hour diary with 10 minutes time intervals. Each respondent should provide 2 diary days – weekend and weekday. This was generally indeed the case with some exceptions when respondents provided diary for one day only. The dataset contains 12,273 records for 6,183 individuals. Children younger than 10 years were excluded.

2.2 Methodology

The analysis predominantly rests on presentations, papers, discussions and various materials produced by the NTA researchers, especially by the NTA Time Use and Gender Working Group led by Gretchen Donehower. The aim of the analysis is to first identify the time spent

on non-market productive activities by distinguishing it from other types of activities; second, to impute wage to those activities and, finally, to calculate the age profiles of production in the form of unpaid (non-market) work. Below we describe those three steps in more details.

2.2.1 Which unpaid activities are considered to be unpaid work

Unpaid work is usually defined and distinguished from leisure using the third party criterion (Reid, 1934). The criterion is whether you could pay someone else to do the task for you or not. This rules out activities like eating, sleeping, leisure etc. from the unpaid work. Activities which we would typically classify as leisure activities include, for example, reading a book or watching a movie. If a third party were to perform them, the benefits would fall on the “doer” instead of on the “hirer” (Ironmonger, 1996). Unpaid work does not embody such a transfer of benefits. It is rather an activity which could be performed by a third party in exchange for payment. The benefits that would ensue would naturally remain with the hiring party.

Further, there is possibility of doing more than one activity at the time. A mother can commit to doing the ironing, while taking care of her child at the same time. Dividing the time unit equally between the multiple activities would be one option. If activities in survey are classified as primary, secondary and tertiary we can assign different shares to each of them. Unfortunately, in our dataset this information is not available.

2.2.2 Valuating the time units

There are two main methods for valuating time units: 1) opportunity cost method and 2) market price method (sometimes also called replacement cost method or substitution method). Using opportunity cost method uses individual’s wage that she receives at the market. If person does not earn market wage then one is imputed to her based on her characteristics. For some forms of unpaid work opportunity cost approach might be justified. For example, it can be the case that highly educated parents interact more intensively with their children and therefore using opportunity costs approach is appropriate. However, for some other forms of unpaid work they would hardly be justified. For example, we do not expect that the outcome of doing a laundry will vary much due to the education of the person performing the activity. In general, opportunity cost approach tends to give high estimates because imputing high skilled inputs to jobs that might not require such high skills and can be ‘produced’, i.e. accounted, by much lower costs.

For such cases the market price method is preferable, which shows how much one would have to pay someone else to perform the job. This method would be the most appropriate for cleaning, cooking and most other forms of unpaid work. Sometimes there is another approach in the market price method for validating time units. Namely, an option would be to assume

generalist (e.g. housekeeper) wage for all home production. In this approach it is assumed that household could hire a person who would provide the unpaid work in a household. This approach usually provides the lowest estimate (Abraham & Mackie, 2005). To differentiate between those two market price methods for valuating unpaid work we will refer to them as 'specialist replacement method' and 'generalist replacement method'. In our analysis we will apply specialist replacement method (main line of results) and opportunity cost method (to present the sensitivity of the results).

2.2.3 Age profiles of unpaid work

Once the non-market production is defined and valued we can directly construct production age profile since information about individual's age is available in the survey. On the other hand, producing consumption age profiles – i.e. how unpaid work is consumed by the members – is more difficult. Some categories of consumption like child-care or elderly-care can be attributed to the household members based on their age. When the non-market labour is consumed by all household members the same approach is used as for allocating market consumption to the household members – either data-driven methods (regression method, for example) or equivalence scale. None of those methods is preferred over the other. It is therefore recommended to try out both approaches to test how sensitive the results are in respect to the method used. For some categories uniform distribution might be sensible. In this paper we analyse only the age profiles of the production.

3 Results

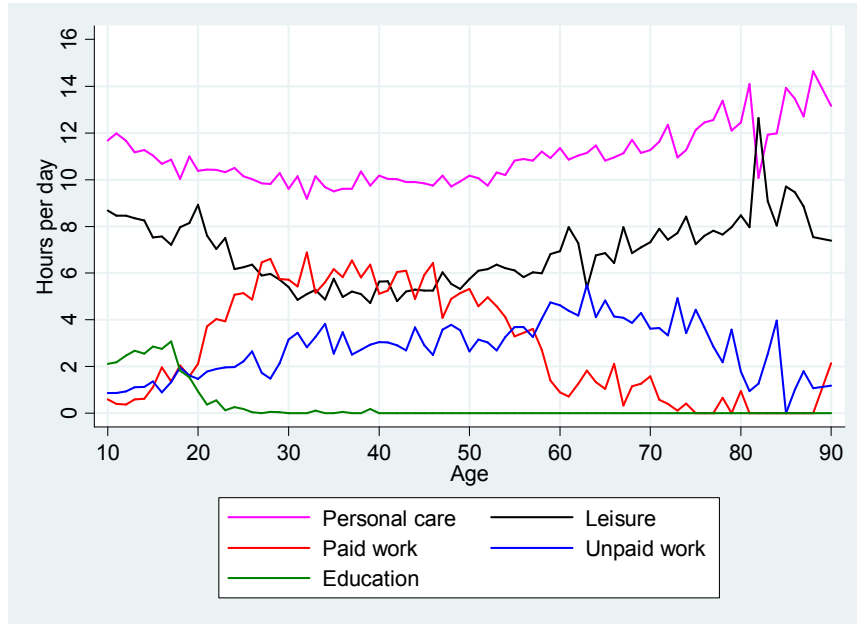
We have classified activities for which people use their 1440 minutes per day into five groups: 1) paid work, 2) education 3) unpaid work, 4) personal care (including sleeping) and 5) leisure. For complete list of activities by those five groups is presented in Appendix 1. For each of these groups we present the average time that people at different ages spend on them – separately for males (Figure 1) and females (Figure 2).

The shape and the level of 'Personal care' age profile are similar for both genders. In contrast, there are clear differences regarding the other three age profiles. In 2000/2001 males worked more hours per day in form of paid work and they retired later as compared to females. Consequently, average time (across all age groups) devoted to paid work was 3 hours and 6 minutes per day for males, but only 2 hours and 7 minutes for males (see Table 1).

The difference between genders was even much greater for 'Unpaid work' – however, in this case it was the other way around – females provided much more unpaid work than males. Whereas males worked in average 2 hours and 49 minutes per day, females worked 4 hours

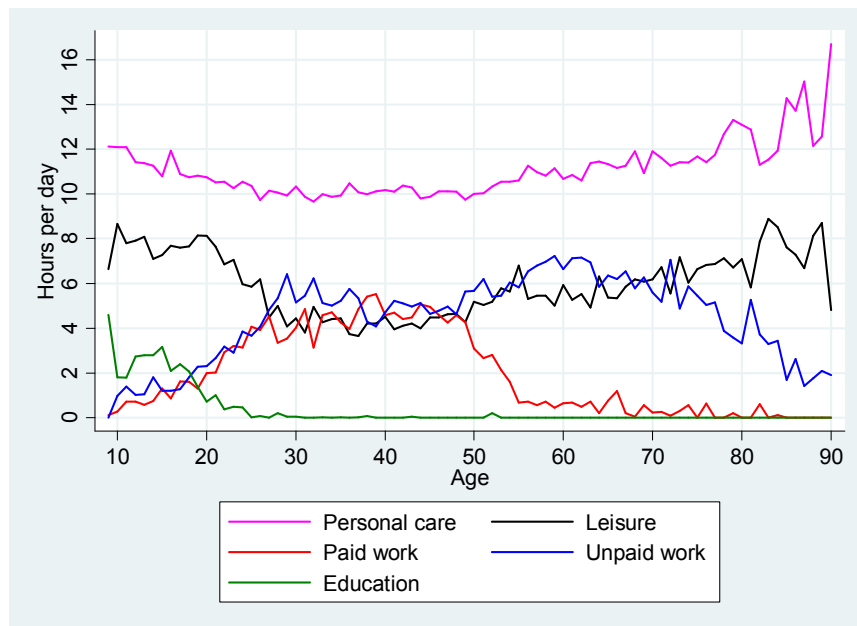
and 39 minutes. Taking into account all age groups and both genders the time devoted to unpaid work (3 hours and 45 minutes per day) is larger than time devoted to paid work (3 hours and 4 minutes). This result strongly confirms our decision to include unpaid work into analysis if we want the comprehensive picture about economic flows among the age groups.

Figure 1: Age profiles of time devoted to individual activities, males



Source: MTUS and authors' calculations.

Figure 2: Age profiles of time devoted to individual activities, females



Source: MTUS and authors' calculations.

Finally, females were left with 51 minutes less leisure time per day than their male counterparts – 5 hours and 39 minutes compared to 6 hours and 29 minutes. Thus, whereas females devote about the same amount of time as their male counterparts for personal care and education, they devote to unpaid work 1 hour and 50 minutes per day more. About an hour per day is compensated by providing less paid work whereas for the remaining difference females had to sacrifice their leisure time (compared to males).

Table 1: Minutes daily devoted to individual activities; comparing females to males

	Minutes per day			Difference (female compared to male)	
	Total	Male	Female	Minutes	%
Paid work	184	217	152	-64	-30
Education	24	26	23	-3	-11
Unpaid work	225	169	279	110	65
Personal care	636	632	641	9	1
Leisure	363	389	339	-51	-13

Source: MTUS and authors' calculations.

In our analysis we are interested for the unpaid work, therefore in Table 2 we present unpaid work decomposed to individual categories. The largest share among unpaid work represents the category ‘Time Cooking, washing up’ where also the gender difference is the largest. Females devote to those activities 1 hour and 41 minutes per day compared to their male counterparts with only 19 minutes per day.

Table 2: Minutes daily devoted to activities of unpaid work; comparing females to males

	Minutes per day			Difference (female compared to male)	
	Total	Male	Female	Minutes	%
Cooking, washing up	61	19	101	82	433
Housework	48	24	71	47	193
Other domestic jobs	26	37	16	-21	-57
Gardening	30	36	25	-11	-31
Shopping	12	10	14	4	40
Childcare	17	10	24	15	150
Travel	22	23	22	-1	-2
Civic duties	8	11	6	-5	-47

Source: MTUS and authors' calculations.

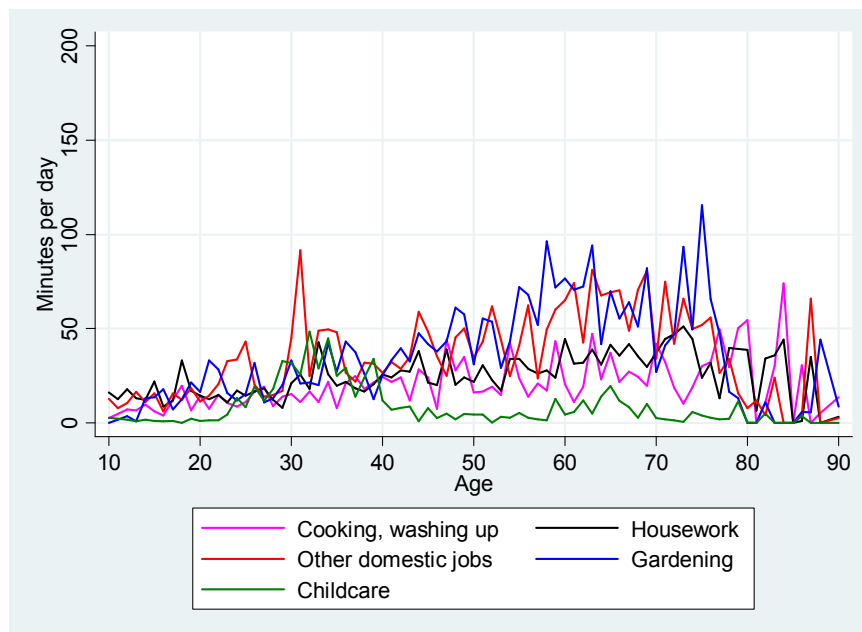
Females are also much more involved in ‘Time spent doing housework’¹ – with 1 hour and 11 minutes compared to males with only 24 minutes. The third category of unpaid work in which females are considerably more involved than males is childcare. The average over all age

¹ This group include activities like washing and ironing clothes, all kinds of indoor and outdoor cleaning. For detailed description of activities compounding categories of unpaid work see Appendix 2.

groups is only 10 minutes per day for males and 24 for females since childcare is concentrated between 20 and 40 years of age (see Figures 3 and 4). However, at around age of 30 it can reach as high as over 40 minutes per day for males and over 100 minutes per day for females.

On the other hand, males perform more unpaid work than females in doing ‘Other domestic jobs’² (37 minutes per day compared to 16 minutes of their female counterparts) and gardening (36 minutes per day compared to 25 minutes). For those five categories of unpaid work we present in Figures 3 and 4 also their distribution across age. We use the same scale in both figures to make the comparison easier.

Figure 3: Age profiles of time spent on selected activities of unpaid work, males



Source: MTUS and authors' calculations.

² Including various kinds of repairs, vehicle maintenance, car washing etc. – again, for complete list of activities by see Appendix 2.

Figure 4: Age profiles of time spent on selected activities of unpaid work, females



Source: MTUS and authors' calculations.

3.1 Translating time units of unpaid work into monetary units

First we present the results using specialist replacement method. We use the data on average gross wages reported by the Statistical Office of the Republic of Slovenia. Unfortunately, the limitations for assigning the most appropriate wages to individual activities come from both sides: 1) the groups of unpaid work are broadly defined and 2) the data on average wages are available only down to the second level (in some cases even only down to the first level) of the International Standard Classification of Occupations (ISCO). Therefore assigning the adequate wages to the categories of unpaid work can be only very approximate. We take into account additional costs paid by the employer on top of the gross wages.

One of the open questions when using specialist replacement method is whether the person providing unpaid work is as productive as a specialist who is providing those services. Specialists may have specialized equipment and/or knowledge about performing those tasks more efficiently. For quality adjustment of unpaid work compared to professional work we have therefore applied the ad hoc method following Donehower (2012) based on Landefeld et al. (2009). For four groups of unpaid work we assume that people are less productive than specialists by 25%, whereas for the remaining four groups we assume they are equally productive (see Table 3). The age profile of valuated unpaid work obtained by specialist replacement method is presented in Figure 5.

Table 3: Grouping of household production activities

Time Use Activity	Quality Adjustment factor
Cooking, washing up	0.75
Housework	0.75
Other domestic jobs	0.75
Gardening	0.75
Shopping	1.00
Childcare	1.00
Travel	1.00
Civic duties	1.00

Source: Donehower, 2012; authors' adjustment to the available data.

For sensitivity analysis we present also the results of the opportunity cost method. Thus, instead of imputing the specialists' wages we impute the wages of the people who provided unpaid work. Not all people were receiving wages in 2004. To those people we impute the wages based on their characteristics. First we run regression having logarithm of the wage rate as dependent variable, whereas independent variables are age square, education and the product of age and education.

$$\log(W_i) = \beta_0 + \beta_1(\text{age}_i^2) + \beta_2(\text{education}_i) + \beta_3(\text{age}_i \cdot \text{education}_i) + \varepsilon_i$$

Next, we use the estimated parameters to impute the wages to individuals who do not receive wage. Thus, for opportunity costs of unpaid work we use actual wages of those who received wages, whereas for the others we have used imputed wages. The results of using the opportunity cost method are presented in Figure 5 as well. As expected, opportunity cost approach yields even higher values of unpaid work. The difference between both approaches is between 30 and 65 years of age when people's wages are in average above the specialists' wages. However, to the people in age groups above 70 the regression method imputes lower wages. Therefore in those age groups opportunity cost method yields even lower results than market price method.

Whether lower values of the unpaid work in the highest age groups are realistic or not is more than only a technical question about which regression model we use in imputation procedure. It also opens the question about age-specific productivity regarding the unpaid work. 80 years old person may not be as productive in providing some activities of unpaid work as someone who is 40 years of age. Taking this aspect into account the declining value of unpaid work in higher ages may be more meaningful than assuming constant productivity across ages – which we do at the moment in the specialist replacement method.

Figure 5: Value of the unpaid work by age groups using specialist replacement method and opportunity cost method



Source: MTUS and authors' calculations.

4 Conclusions

In 2000/2001 people in Slovenia devoted per day 3 hours and 45 minutes of their time to the unpaid work. This is more than they devoted to paid work (3 hours and 4 minutes per day). Those results strongly confirm the necessity to supplement the existing NTA results with the value of unpaid work. Whereas females devote 1 hour and 4 minutes per day less to paid work than males, they more than compensate this difference by working 1 hour and 50 minutes the unpaid form of work. By spending about the same amount of time for personal care they are left with 51 minutes less leisure time per day. We have valued the unpaid work with specialist replacement method and opportunity cost method. People are most occupied with the unpaid work between age 35 and 70. We hope for more detailed data in the future to accurately assign the value (consumption) of the unpaid work. This would supplement and complete the picture of intergenerational transfers from the basic NTA results that focus only on transfers in money form.

References

Abraham, K. G., & Mackie, C. (2005). *Beyond the market: Designing nonmarket accounts for the United States*, The National Academies Press.

Becker, G. (1965). A Theory of the Allocation of Time, *Economic Journal*, Vol. 75, No. 299; pp. 493-517.

Becker, G. (1991). *A treatise on the family*. Harvard University Press: Cambridge, MA.

Bianchi, S.M., Sayer, L.C., England, P. & Bittman, M., (2009). How Long Is The Second (Plus First) Shift? Gender Differences in Paid, Unpaid, and Total Work Time in Australia and the United States, *Journal of Comparative Family Studies*, Vol. 40, Issue 4; pp. 523-545.

Bonke, J. (2005). Paid work and unpaid work: Diary information versus questionnaire information, *Social Indicators Research*, Vol.70 no.3; pp. 349- 368.

Boye, K. (2009). Relatively different? How do gender differences in well-being depend on paid and unpaid work in Europe?, *Social Indicators Research*, Vol. 93, Issue 3; pp. 509-525.

Corsi, M. & D'Ippoliti, C. (2009). Poor Old Grandmas? A Note on the Gender Dimension of Pension Reforms, *Brussels Economic Review*, Vol. 52, Issue 1; pp. 35-56.

Donehower, G. (2012). *Incorporating Gender and Time Use into NTA: National Time Transfer Accounts Methodology (version 3, May 9, 2012)*. Internal materials of the NTA project.

Fox, J. (2012). The Economics of Well-Being, *Harvard Business Review*, Vol. 90 Issue 1/2; pp.78-83.

Hakim, C. (2010). (How) can social policy and fiscal policy recognise unpaid family work?, *Renewal : a Journal of Labour Politics*, Vol. 18, Issue 1/2; pp. 23-33.

Hill, T. (2009). Time Use, Gender and Disadvantage in Australia: Conventional Income and “Full Income” Approaches to Estimation, *The Economic and Labour Relations Review*, Vol. 20, no.1; pp.13-33.

Himmelweit, S. (2002). Making visible the hidden economy: The case for gender impact analysis of economic policy, *Feminist Economics*, 8 (1); pp. 49–70.

Hochschild, A. (1989). *The second shift*. New York: Avon Books.

Hoskyns, C. & Rai, S. M. (2007). Recasting the Global Political Economy: Counting Women's Unpaid Work, *New Political Economy*, Vol. 12, Issue 3; pp. 297-317.

Ironmonger, D. (1996). Counting Outputs, Capital Inputs and Caring Labour: Estimating Gross Household Product, *Feminist Economics*, Vol. 2, No. 3; pp. 37-64.

Kizilirmak, B. & Memis, E. (2009). The unequal burden of poverty on time use, Levy Economics Institute, Working Paper Archive.

Krantz-Kent, R. (2009). Measuring time spent in unpaid household work: results from the American Time Use Survey, *Monthly Labour Review*, Vol. 132 Issue 7; pp.46-59.

Kuznets, S. (1941). National Income and Its Composition, 1919-1938, National Bureau of Economic Research.

Lefeld, J. S., Fraumeni, B. M., & Vojtech, C. M. (2009). Accounting for Household Production: A Prototype Satellite Account Using the American Time Use Survey. *Review of Income and Wealth*, 55(2), 205-225.

Miranda, V. (2011). Cooking, Caring and Volunteering: Unpaid Work around the World, *OECD Social, Employment and Migration Working Papers*, No. 116.

Nadin, S. & Williams, C. (2010). Rethinking the commercialization of everyday life: a ‘whole economy’ perspective, *Foresight*, Vol. 12, No. 6; pp. 55 – 68.

Nordhaus, W.D. (2000). New directions in national income accounting, *The American Economic Review*, Vol. 90, Issue 2; pp. 259-263.

OECD (2011a). “Cooking and caring, building and repairing: Unpaid Work around the World”, Society at a Glance, *OECD Social Issues/Migration/Health*, Vol. 2011 Issue 2; pp. 3-21.

OECD (2011b). Child poverty rises: but could addressing non paid work provide answers? , *The OECD Observer*; No. 284; p. 73.

Phillips, L. (2008). Silent Partners: The Role of Unpaid Market Labour in Families, *Feminist Economics*, 14(2); pp. 37-57.

Razavi, S. (2011). Rethinking Care in a Development Context: An Introduction, *Development and Change*, Vol. 42, Issue 4; pp. 873-903.

Richardson, S. And Travers P. (1993). *Living Decently: Material Wellbeing In Australia*, Oxford University Press: Oxford.

Rivero, E. (2011). *Estimating the monetary value of non-market labour in Mexico* [presentation slides]. Retrieved from <http://ntaccounts.org/web/nta/show/Documents/Meetings/Gender%20c%20Time%20use/FirstTUWorkshop>.

Reid, M. G. (1934). *Economics of Household Production*, New York: John Riley and Sons Inc.

Stiglitz, J., A. Sen & J.P. Fitoussi (2007). Report by the Commission on the Measurement of Economic Performance and Social Progress, www.stiglitz-sen-fitoussi.fr.

Warner, M. (2009). (Not) Valuing Care: A Review of Recent Popular Economic Reports on Early Education in the U.S. *Feminist Economics*, 15(2); pp. 73-99.

Very preliminary text and results (please, do not quote)

Appendix 1: Variables available in the Time Use Survey

Variable	We treat activity as...
Time in paid work	Paid work
Time in paid work at home	Paid work
Time in paid work, second job	Paid work
Time in school, classes	Education
Time in travel to/from work	Paid work
Time cooking, washing up	Unpaid work
Time spent doing housework	Unpaid work
Time spent doing odd jobs	Unpaid work
Time spent gardening	Unpaid work
Time spent shopping	Unpaid work
Time spent in childcare	Unpaid work
Time spent during domestic travel	Unpaid work
Time for dressing/toilet	Personal care
Time spent receiving personal services	Personal care
Time spent eating meals and snacks	Personal care
Time spent sleeping	Personal care
Time spent during travel for leisure	Leisure
Time spent on excursions	Leisure
Time spent actively participating in sports	Leisure
Time spent passively participating in sports	Leisure
Time spent walking	Leisure
Time in religious activities	Leisure
Time doing civic duties	Unpaid work
Time at the cinema or theatre	Leisure
Time at dances or parties	Leisure
Time at social clubs	Leisure
Time at pubs, cafes	Leisure
Time at restaurants	Leisure
Time visiting friends	Leisure
Time listening to radio	Leisure
Time watching the television or video	Leisure
Time listening to records, tapes, cds	Leisure
Time in study	Leisure
Time reading books	Leisure
Time reading papers, magazines	Leisure
Time relaxing	Leisure
Time in conversation	Leisure
Time entertaining friends	Leisure
Time knitting, sewing, etc.	Leisure
Time in other hobbies or past-times	Leisure
Time in unclassifiable activities, or not recorded	Leisure

Source: MTUS (Multinational Time Use Study).

Appendix 2: Activities included in categories of unpaid work

AV6: Cook/wash up

Including such activities as:

Food preparation
Baking, freeze foods, make jams/pickles/preserves, dry herbs
Washing up, putting away dishes
Making a cup of tea, coffee, etc.
Set table

AV7: Housework

Including such activities as:

Washing clothes, hanging washing out to dry, bringing it in
Ironing clothes
Making, changing beds
Dusting, hovering, vacuum cleaning, general tidying
Outdoor cleaning
Other manual domestic work
Housework elsewhere unspecified
Putting shopping away
½ of time in “Arrived home”, “went out”
Notes: ☹ Include all “sundry” or “other” house/domestic work variables

AV8: Other domestic work

Including such activities as:

Repair, upkeep of clothes
Heat and water supply upkeep
DIY, decorating, household repairs
Vehicle maintenance, car washing, etc.
Home paperwork (not computer)
Pet care, care of houseplants
(Other) tasks in and around the home, unspecified
Tasks – unspecified
Feeding and food preparation for dependant adults
Washing, toilet needs of dependant adults
Shopping for others
Fetching/carrying for other
Other care of adults
Doing housework for someone else (unpaid)
Care of adults (unspecified)
Service for animals (eg animals to vet)
Fetching, picking up, dropping off
Home paperwork on computer
Notes: ☹ Include helping/caring for sick/disabled adults (excludes “volunteering” – see AV23).
☹ Include any *general* care of family (i.e. Italy 1989: AV2411 – “Other family care activities”).
☹ Include obtaining medical care *for* household adults; also include *self administered* medical care and medical care administered *to* (by respondent) other household adults.
☹ Include unpaid help to others (i.e. house cleaning; farm help; assistance in correspondence, transportation, etc)
☹ Include variables such as “dressmaking” or “making clothes” when they are grouped with other “domestic work” variables in the original dataset. This would imply that they are not leisure activities.

AV9: Gardening

Including such activities as:

Gardening
Notes: ☹ Include any original variables which *combine* “gardening” and “animal care”

AV10: Shopping

Including such activities as:

Everyday shopping, shopping unspecified
Shopping for durable goods
Services for upkeep of possessions
Money services
Attending jumble sales, bazaars, etc.
Video rental or return
Other service organizations or use (e.g. travel agent)

Notes: ☹ Include all activities where a “maintenance service” is used (i.e. fill up car at petrol station, taking clothes to the cleaners etc)

☹ Include all activities labelled “other” or “uncodeable” services.

☹ Include “errands” and “running errands”)

AV11: Childcare

Including such activities as:

Feeding and food preparation for babies and children
Washing, changing babies and children
Putting children and babies to bed or getting them up
Babysitting (i.e. other people’s children)
Other care of babies
Medical care of babies and children
Reading to, or playing with babies and children
Helping children with homework
Supervising children
Other care of children
Care of children and babies – unspecified

Notes: ☹ Include “obtaining” medical care for children/babies

☹ Include all activities involving/in relation to child care, time spent with children or activities for the purpose of caring for children.

☹ “Babysitting” implies unpaid child care.

AV12: Domestic travel

Including such activities as:

Accompanying adult or child (i.e to doctor)
Shopping/services (travel to/from)
Care of others (travel)
Posting a letter

Notes: ☹ Include all travel related to household, care of children, shopping, personal services/care, etc.

AV23: Civic activities

Including such activities as:

Legal services, dealing with police
Community/political, trade union meetings
Activities as councillors, officials
Voluntary tutoring
Organizing sports/coaching
Providing meals/refreshments
Paperwork associated with voluntary activity
Other voluntary/organizational work
Other political/community activities (eg demonstration)
Other religious, political, community, voluntary activities
Scouts / guides / sea cadets, related civic groups for young people (includes adults who act as leaders)
Filling in time budget diary

Notes: ☹ Include variables concerning “meetings” (i.e. “church meeting”)