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Descriptive Finding

The life cycle dimension of time transfers in Europe

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The life cycle dimension of time transfers in Europe

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Abstract

BACKGROUND

Reallocation of economic resources between generations and genders has important consequences for economic growth and inequality. Unpaid work is a relevant component of intergenerational transfers, but is invisible to traditional accounts. Time use data can complement accounts of monetary transfers.

OBJECTIVE

The main goal of this article is to provide estimates of life cycle profiles of consumption and production of unpaid activities. These profiles can be used to evaluate transfers of time by age and sex.

METHODS

We use data from the Multinational Time Use Study (MTUS) to estimate profiles of time allocated to unpaid productive activities, by age, sex and household structure, for selected European countries. The unpaid working time is then distributed, with a statistical model, to those age groups that benefit from it, in order to estimate age-specific consumption profiles of time.

RESULTS

We observe large transfers of time from females to males, and from adults to children. Life course trajectories are qualitatively similar across countries, but with significant variations in levels. Differences in profiles by household structure may be associated with incentives or disincentives for particular fertility choices in different social and institutional settings.

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CONCLUSIONS

This article quantifies household production and non-market transfers. It offers insight into the underestimation of the economic contribution of women.

COMMENTS

This article provides some descriptive findings that could be incorporated with other research pursued by scholars in the National Transfer Accounts (NTA) project to monetize the value of time and include it in standard transfer accounts.

1. Introduction

A large quantity of goods and services are produced by household members for their own consumption, without involving market transactions. Despite the economic and social importance of unpaid work, these productive activities are largely invisible to standard national economic accounts. Consequently, traditional measures of intergenerational transfers typically ignore household production, and thus underestimate the overall value of goods and services produced over the life cycle, in particular, the economic contribution of women.

Recently, there have been some efforts to evaluate the extent of household production, and to integrate it into national accounts (e.g., Abraham and Mackie 2005; Anxo et al. 2007; Donehower and Mejia-Guevara 2012; Sambt and Malacic 2012). The increasing availability of harmonized time use surveys has made possible comparative analyses of non-market activities. The estimation of time transfers between generations and genders is intended to create a map of new and partially unexplored territories. The results of this line of research would complement traditional studies of intergenerational market-based transfers between generations and across countries.

In this article, we estimate household production and consumption of unpaid work, by age and gender, in a comparative perspective. The profiles that we obtain and the patterns that we document are relevant to address questions such as: to what extent do women contribute more than men to household production? What is the age direction of intergenerational time transfers? How much time do people spend on providing care for their children or elderly parents? How much does the time investment in children vary across countries?

2. Data and methods

We use data from the Multinational Time Use Study (MTUS) to estimate age- and sex-specific profiles of time consumption and production. MTUS includes a collection of time use surveys that have been harmonized to allow for comparative analyses. Large samples of micro data, with information on the allocation of time to various activities of daily life, are available for several European countries. In this article, we use data for 4 European countries for which we have large samples and recent surveys. More specifically, we analyze data from 51,206 diaries from Italy (2002), 46,774 diaries from Spain (2002), 35,813 diaries from Germany (2001), and 15,441 diaries from France (1998). The large samples allow for disaggregation of the activities by sex and single years of age. For Italy and Spain, there are between 200 and 400 individuals in each single-sex and single-year age group. The sample size is similar for Germany, except for a few sex- and age-groups for which we have around 100 observations, and for people who are older than 70 years, for whom the single-year and single-sex sample size is reduced to about 50 observations. For France, the total sample size is smaller. Nonetheless, most of the single-year and single-sex cells have between 80 and 150 observations.

Data on time use are collected using diaries in which respondents report their main and secondary activities during a randomly assigned day, as well as their locations and the presence of any other person. The MTUS micro data provide valuable information about time dedicated to production and consumption, at both the household and individual levels.

We estimate both age- and sex-specific profiles of time production directly from survey data. First, we identify a set of unpaid productive activities that meet the “third party criterion” (i.e., people can potentially pay somebody else to do the activities for them (Reid 1934)). These activities include childcare, housework, shopping, caregiving, gardening, and other related household activities. Then we evaluate the average time dedicated to these activities by sex and age group, and use Friedman’s smoother (Friedman 1984) to obtain a smooth profile of time dedicated to unpaid productive activities by age.

We assume that the overall time produced within the household is equal to the overall time consumed, and that time consumption does not vary by sex. We do not have any direct information about how household members consume the time produced at the household level. Hence, in order to generate age-specific profiles of time consumption, we use an indirect method. More specifically, we generate estimates of profiles of time consumption using an approach that has been widely used to evaluate consumption of economic goods for individuals, by age, from aggregate household-level data (e.g., Mankiw and Weil 1989; Zagheni 2011). The method is based on a regression model with indicator variables for different age groups in the household. The overall consumption of time for household j , C_j , can be expressed as an additive function of time consumption for each

member of the household:

$$C_j = \sum_{k=1}^M C_{jk} \quad (1)$$

where C_{jk} is the consumption of the k th member of household j , and M is the household size. For each individual, consumption of time is considered as a function of age. Thus, time consumption for an individual of age a can be expressed as $\beta(a)$. In a linear setting, each age group has its own parameter, so that:

$$C_{jk} = \beta(0)I(0)_k + \dots + \beta(a)I(a)_k + \dots + \beta(80)I(80)_k \quad (2)$$

where $I(a)_k$ is equal to 1 if the age of household member k is equal to a ; 0 otherwise. Combining equation 1 with equation 2, we obtain the following expression, with parameters that can be estimated using a linear regression model:

$$C_j = \beta(0)N_j(0) + \dots + \beta(a)N_j(a) + \dots + \beta(80)N_j(80) \quad (3)$$

where:

C_j = total time for domestic activities produced/consumed by household j

$N_j(a)$ = Number of members of age a for household j

$\beta(a)$ = OLS parameter estimates that represent the effect of an additional person of age a on household time consumption/production.

The β coefficients in equation 3 can be interpreted as demand or consumption of time, for the respective age groups. We smoothed the series of coefficients for each single age group, using Friedman's smoother, to obtain a smooth profile of time consumption by age and sex.

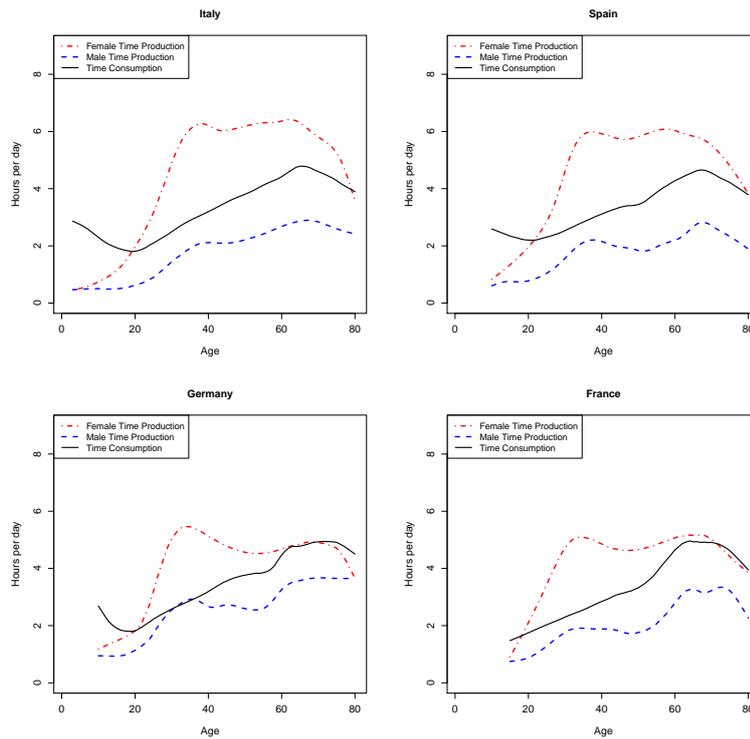
The difference between profiles of consumption and production gives a measure of the life cycle deficit for each age group and sex. Positive values for the life cycle deficit indicate that the person in the specific age group considered consumes more household time than he or she produces.

3. Results

Figure 1 shows the estimated profiles of average daily time dedicated to unpaid productive activities by age and sex, and consumption of time, by age, for selected countries. We show the results for each country for which we have data from relatively recent surveys in the MTUS dataset: Italy (2002), Spain (2002), Germany (2001) and France (1998). Females tend to spend more time on unpaid household activities than males at virtually all ages. Time dedicated to domestic activities increases with age. For males, it slowly grows in almost a monotonic way. For females, it reaches a peak between age 30 and 40,

with a tendency to either stabilize or slightly decrease thereafter. In some countries we observe two peaks, one around the typical age at childbearing, and the other around the age at retirement, or the age when women become grandmothers.

Figure 1: Estimates of profiles of time dedicated to unpaid productive activities by age and sex, and consumption of time, by age, for selected countries



Source: own elaborations on MTUS data

The age patterns are fairly similar across countries, but there are important differences in levels. For example, we observe the highest levels of gender inequality in Southern European countries. In Italy and Spain there is the largest gap between time production of men and women over the life cycle. Patterns of time consumption are quite regular across countries. We assumed that both men and women equally benefit from the result

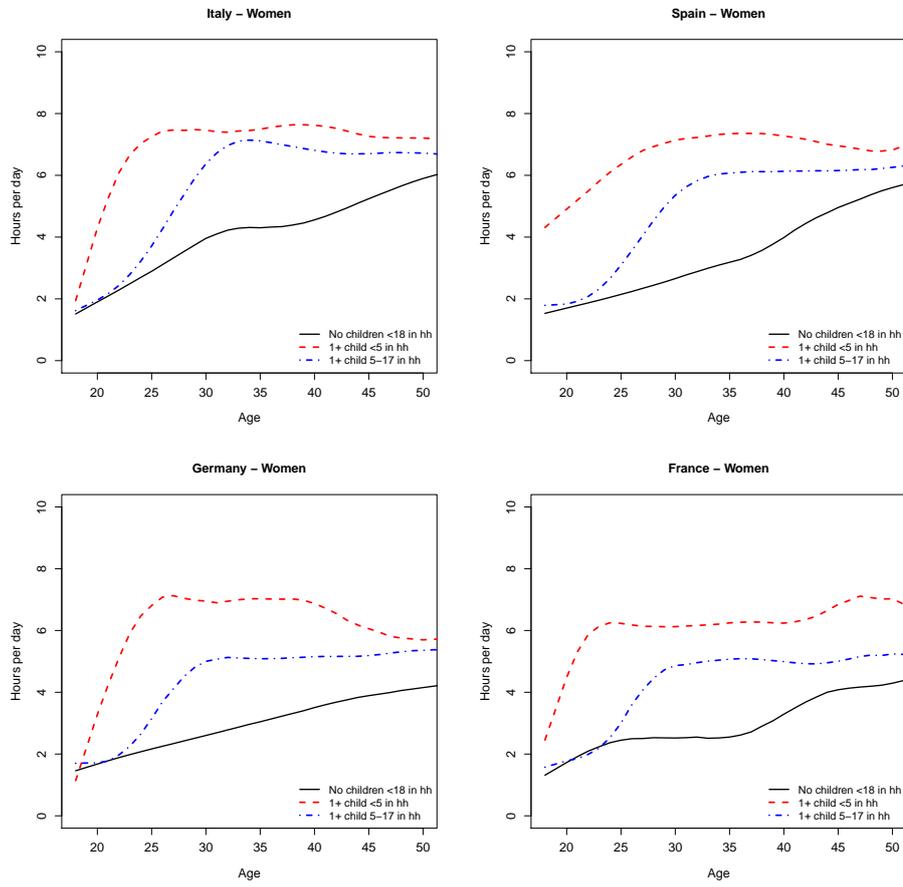
of unpaid household production, regardless of whether it is gardening, chores, or other activities. The difference between profiles of consumption and production by age gives us a measure of the life cycle deficit/surplus of time production. Women tend to generate a surplus of time production, and transfer it to men, throughout most of the life cycle. The gap between women and men becomes small only late in the life cycle. For all the countries considered, the mean age at time production is slightly higher than the mean age at time consumption. This tends to indicate that overall time transfers flow from adults to children. However, our sample is limited to people who are 80 years old and younger. Therefore we may underestimate the flow from adults to the elderly.

Figures 2 and 3 show our estimates of profiles of the time that women and men, respectively, dedicate to unpaid household production by age and by household structure. We construct profiles of time production for households with no children less than 18 years old, households with at least one child less than 5 years old, and households with at least one child who is 5-17 years old. The analysis is restricted to individuals who are between 18 and 50 years old because of data availability. For each sex and single year of age between 25 and 40, the sample size for households with co-resident children younger than 5 years old is quite large (from several tens to almost 200 observations). The sample size, however decreases quite rapidly for very young men and women, and for individuals in their 50s, for whom we have only a few diaries in each group.

We observe a large difference in the time that women dedicate to household production between parity 0 and parity 1 or more. Women with young children increase the time dedicated to household activities substantially. Most of the increase can be attributed to childcare. Women with older children tend to dedicate less time to domestic activities than women with young children. However, in some countries, such as Italy and Spain, the difference in time production of women with older children and younger children is minor. We observe an age shift in the profile of household production, reflecting the fact that older women have older children. Overall, the time dedicated to household production by women with older children is very similar to that of women with young children.

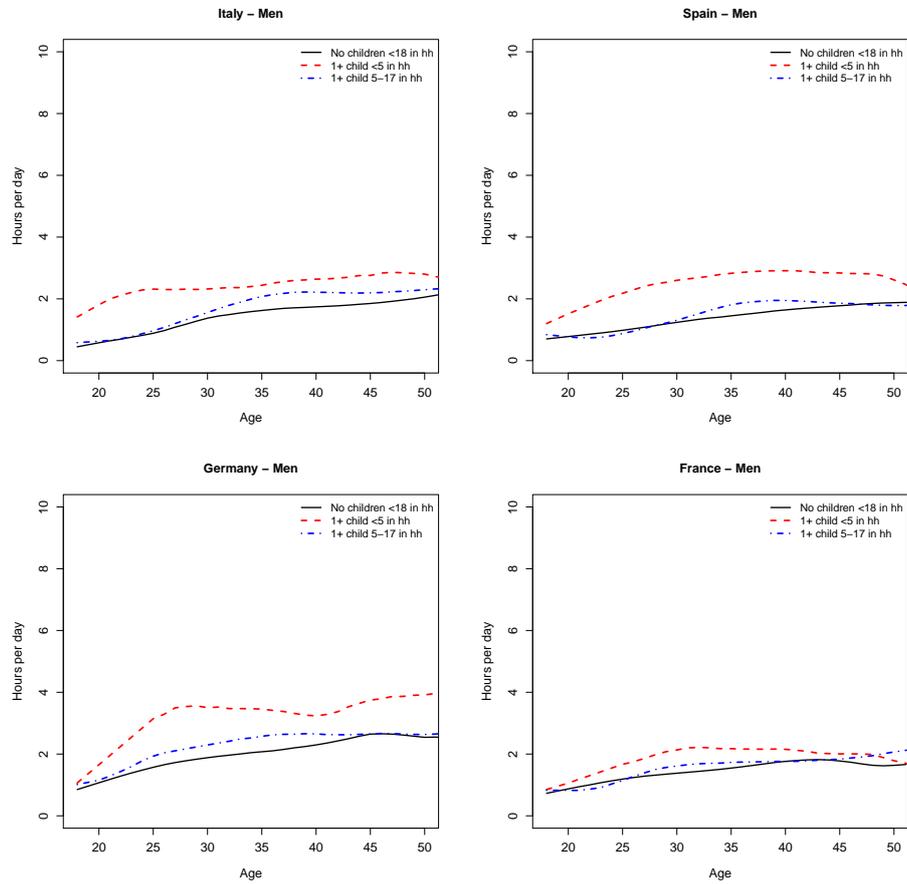
Profiles of household production for men show much smaller differences with changes in household structure, indicating that most of the work related to children is done by women. Men tend to increase the time dedicated to household production when there is a young child in the household. However, for most countries, the difference between the profiles of men with no children less than 18 and the profiles of men with at least one child 5-17 years old, is negligible.

Figure 2: Estimates of profiles of the time that women dedicate to unpaid productive activities by age and household structure



Source: own elaborations on MTUS data

Figure 3: Estimates of profiles of the time that men dedicate to unpaid productive activities by age and household structure

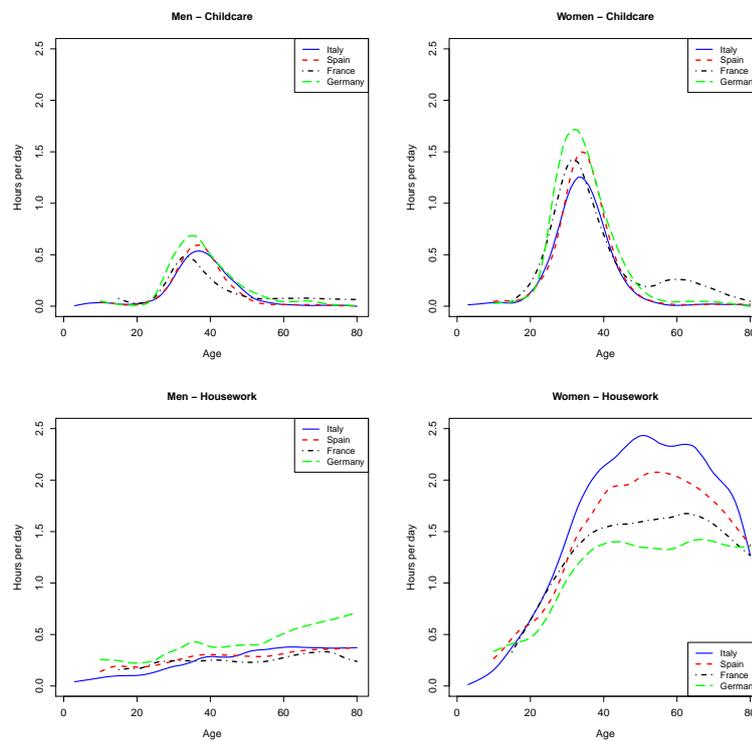


Source: own elaborations on MTUS data

Figure 4 shows profiles of time dedicated to two important activities, childcare and housework, by age and sex, across the selected countries. The large differences between men and women are as striking as they are regular across countries. However, there are also noticeable differences. Germany is the country where both men and women tend to spend more time on childcare, compared to their counterparts in the other countries ana-

lyzed. In France, the time that young couples dedicate to childcare is lower, but the role of grandmothers is clearly visible from a bump in the age profile for women around age 60. In terms of housework, Italy and Germany are the two extremes. In Italy, women spend more time on housework than women in other countries virtually at all ages. In Germany, the opposite is true. At the same time, men in Italy have one of the lowest profiles of time dedicated to housework. Men in Germany spend more time doing housework than men in other countries, at all ages.

Figure 4: Estimates of profiles of the time that men and women, respectively, dedicate on average to childcare and housework, by age



Source: own elaborations on MTUS data

4. Conclusions

Our results highlight the economic importance of unpaid productive activities. The time that women dedicate to domestic work is in the order of part-time jobs. Although time spent on unpaid activities decreases at older ages, it remains significantly high for the elderly. Thus, this article shows that there is a large quantity of household work produced by women and the elderly that is invisible to national economic accounts. Previous research has provided evidence that intergenerational transfers within the family tend to flow downwards, from the elderly to younger generations. In this article, we showed that most of the time production, even at older ages, comes from women. The patterns of time production and consumption that we observed are fairly similar across countries, although there are differences in levels.

The work that we presented offers a preview of, and a motivation for, more extensive analyses that are underway within the National Transfer Accounts (NTA) project, a large and international collaborative endeavor to measure intergenerational transfers and evaluate their macroeconomic consequences. One of the goals of the NTA project is to monetize the value of time transfers and include it in standard economic accounts. Researchers within NTA will use the most detailed time use surveys available in order to evaluate profiles of time production and consumption. Then they will incorporate these estimates in standard (monetary) transfer accounts. The work that will be done within NTA will address one of the major limitations of the current study, that is the difficulty of separating activities that generate within-household time transfers from those that generate between-household time transfers. In this article, we presented results mainly for intra-household transfers, since some information about inter-household transfers could not be isolated in the MTUS. More details about inter-household transfers can be extracted from the original (non-harmonized) diaries collected by national statistical offices. Here we presented a first picture of transfers of time by age and gender. The next steps in this line of research will be to expand the analysis of inter-household family transfers and to evaluate the monetary value of time transfers.

Time transfer accounts are relevant for the study of gender inequalities and intergenerational ties. The findings that we described in this article could be expanded to evaluate heterogeneity in time transfers, for instance by socio-economic class, race, ethnicity, etc. Time transfer accounts could also provide useful information to aid the understanding of incentives and disincentives to fertility choices in countries with below-replacement fertility levels, to help design effective redistributive policy interventions, and to improve our understanding of the interrelationships between time use, institutions and welfare systems. We believe that future work in this area has the potential to lead to important theoretical advances in our understanding of intergenerational transfers. In turn, improved theoretical knowledge might have relevant policy implications.

5. Acknowledgements

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