COLLECTION OF THESSES

Csilla SEBŐK

The effect of female employment on time use

Ph.D. Thesis

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I. RESEARCH OBJECTIVES AND ANTECEDENTS

1.1. Subject Proposal

One of the most popular research topics of time-use is the investigation of gender inequalities in dual-earner couples; especially regarding the time spent on housework. For as long as the dominant family model was based on male breadwinner and female housewife, the traditional share of responsibilities within the family was widely accepted. After women started to take paid jobs and thus started to contribute to the family income, it was assumed that men would increasingly participate in the housework. Based on research data covering the last 50 years, women’s increased presence on the labor market did not transform radically the pattern of labor division within the family, although according to time series data men tend to spend more time – while women tend to spend less time – on performing traditional household activities. As a result, the double burden of workplace and domestic – both household and childcare – activities causes increasing fatigue and stress for women, which impacts the overall family quality of life, social and emotional development of children, the individual’s health, employment opportunities and also can be related to undesired demographic trends. Nowadays, the dual-earner family model became dominant, and due to the adverse consequences, the questions concerning men’s involvement in housework and childcare arise more and more often.

My research investigates the most important tendencies between women’s employment and daily time use between 1999-2000 and 2009-2010. Through the analysis of time use we can capture social-economic changes, which evolve over a longer period of time therefore their trends can be formulated within such timeframes. The primary objective of the questions discussed within the dissertation is exposing those trends and placing them within the social change processes, furthermore give possible explanations of them.

1.2. Research Questions and Hypothesis

I examined four topics in my dissertation, which reflect on specific problem areas of women employment, and can be addressed interrelated or as separate research topics. Below I summarize the main research questions and hypotheses, giving references to the theoretical backgrounds as well as to results of preceding researches.
My first research topic discusses the question how the time spent on paid work and household and childcare activities, of men and women evolved between 1999-2000 and 2009-2010.

While discussing this issue, different processes of social changes should be considered: firstly the „de-industrialization” trends of the labor market, secondly the increased education level of the population due to expanding educational access, furthermore the changes related to gender roles. These factors can be detected also in Hungary (Blaskó 2006; Bojer et al. 2013; Pongrácz - S. Molnár 2011). Accepting the position that people with higher qualifications tend to espouse less traditional view of gender roles, and the perception on gender roles do influence couples’ share of domestic responsibilities, I assume that this dynamic increase in educational levels must have detectable change impact on time use patterns, i.e. influencing also the time spent on household chores by men and women.

**Hypothesis 1:** I assume that in 2009-2010 men spent more while women spent less time on household chores and childcare than in 1999-2000.

With my second research topic I analyze the changes of time spent on paid work by employed women, based on social-occupational groups, between 1999-2000 and 2009-2010. As a result of labor market processes, the structures of both the economic sectors and the occupations have changed. This had an impact on the distribution of occupations along genders and along white/blue-collar attributes, respectively. For the women, this meant that the number of attainable occupations has increased, especially in professional, leadership, and routine services employments. This also meant polarization of the labor market not only in terms of qualification, but in terms of the length of working time. International research results show that employees in leadership positions work the longest hours, whereas the atypical working time schedules and arrangements are most prevalent in unskilled service occupations (Warren 2003).

**Hypothesis 2:** I assume that the polarization of the length of working time is relevant in Hungary, too: women in managerial positions and highly qualified women have longer working day than what women have in other socio-occupational groups.
In the third research topic I would like to reveal the connections between the length of time spent on paid work and other daily activities – especially household chores and child care – amongst the employed women in 1999-2000 and 2009-2010. In the limited 24-hour daily timeframe the extended length of working time inevitably causes decrease of time spent on other activity(ies). According to the theories related to changes of the so-called parental culture, the women’s employment has impacts on both the time spent with childcare (Sullivan 2011) and on the composition of the parental activities (Daly 2004). When the time spent on paid job becomes longer, parents may need to choose how to spend their remaining time. However, part of the activities related to childcare – for example the physiological needs of infants – does not depend on individual choices.

**Hypothesis 3:** Employed women with children spend less time on household work compared to women without children – this way they „make time” to participate in childcare activities.

In the fourth research topic I investigate how much the employed women living with spouse/partner are influenced by the problem of reconciling work and other private activities. The autonomy related to work and the scheduling control over its timing are the attributes of the employment that enable women to organize household and family activities (like municipal, banking activities etc.) in a more seamlessly manner. (Burchell et al. 2007; Mennino et al. 2005; Parent-Thirion et al. 2012; Pocock-Skinner-Ichii 2009; Skinner-Pocock 2010). Without those attributes carrying out these activities are difficult even for those who only work regular 8-hour shifts and do not have particular family responsibilities. Employed women with family responsibilities have very inflexible and rigid daily schedule due to activities like commuting children to kindergarten or school, so it is even more difficult for them to arrange unexpected tasks. The extent of this problem may depend on the number of children or the age of the youngest child in the family.

**Hypothesis 4:** Family characteristics have bigger impact on difficulties of arranging work and other family activities for employed women living with spouse/partner than work-related or occupational attributes (e.g. length of working time or shifts).
I.3. Relevance of the Research

Investigating the employed women’s time spent on paid work is not a novel scientific subject, but if we examine the phenomenon through additional employment-related attributes like shifts, working time and job sector, these researches provide new and/or deeper aspects of time use research in Hungary.

Recently the so-called parental culture has included the full-time mother status to lesser and lesser extent; the economical needs and/or social expectations result in dual-earner family patterns. The analysis of how the time use (e.g. time spent on childcare) change within the limited 24-hour daily time frame when another daily activity (e.g. time spent on paid work) extends, is unique amongst national research publications. This approach may reveal which group of women is mainly impacted by the reconciliation difficulties of work and maternal roles, as well as it helps to understand the fatigues emerging at certain life-stages of individuals.

The work-life conflict is also a subject often analyzed but my approach is novel by differentiating whether life component is linked to personal or/and to activity factors more.
II. METHODOLOGICAL FRAMEWORK

All four hypotheses in my research are based upon the quantitative data analysis of time-use survey. First I introduce the data source, and then I review the sample attributes, dependent and explanatory variables, as well as the analysis process, which always begins with descriptive statistics followed by multi-variant analysis.

II.1. Data

The empirical research of the dissertation is based on the time use survey in 1999-2000 and in 2009-2010. This data collection method records the respondent’s activities performed within a 24-hour period and the actual time spent on those specific activities. A so-called time-use diary was used for data collection, which is principally a table that contains – in chronological order – the performed activities, and some supplementary information to those activities. Additionally, the data collection was completed with the respondent’s other attributes e.g. educational, employment-related and household information. The latest Hungarian time-use survey in 2009-2010 was carried out amongst the 10-84 years old population. Before that, in 1999-2000 the sample contained the data of population aged the 15-84 years old. These two data collections are inconsistent with each other at some points. However, this fact did not impact the comparison of the calculations, but it limited the complexity of the analysis of some questions.

The socio-demographical characteristics of respondents of the two time-use surveys (1) were compared with each other, and (2) were compared with the population census data as well. Differences regarding the first point may influence the tendencies of changes measured in the time use, which needs to be considered during the analysis. The second point is critical to determine if the sample properly represents the given population.
II.2. Time spent on household work amongst men and women

The gender-based differences in time spent on housework were examined in the 15-84 years old population. 4 activity groups were formed for the investigation, which were the dependent variables of the analysis: (1) all household work and childcare, (2) “traditional” housework, (3) shopping and services, and (4) childcare. It is known from the literature review (Kan et al. 2010) and from descriptive analysis that in case of some types of household work men and women are spending their time differently.

For the compilation of background variables it was important that the variables and their categories could be compared between the two data collections. On this basis, the main explanatory variables were: gender, age group, educational level, marital status, economic activity, the household size, number of children, family life cycle, Andorka's occupational status groups, EGP schema, type of settlement and type of day.

During the first step of the analysis of household work I analyzed the "A", "B" and "C" type time-data along the main socio-demographic characteristics. Then I used multivariate statistics to discover changes in gender-based differences on household activities or changes that occurred during the ten years. For the examination of the research question I defined two models:

(1) the first model examined to what extent the time spent on housework and childcare depends on gender and the year of data collection,

(2) the second model analyzed the determination of household labor broader. The one-dimensional inclusion of gender variable in the models would not show its real explanatory power, because it embodies the impact of other social characteristics as well. Therefore I expanded the range of explanatory variables to include other main socio-demographic factors. The information thus obtained would then show how the impact of these factors changed over time.

In both models I took the interaction of the year of data collection and the socio-demographic factors.

The multivariate statistical method I chose was the Tobit regression, which is a widely accepted method for time-use data analyses (Flood-Grasjö 1998; Foster-Kalenkoski 2010). The Tobit regression can successfully be used when data rows contain non-negative values.
and high proportion of 0 values. It is basically a linear regression where the dependent variable has a threshold limit left or right or both sides. Time variables typically have this characteristic where the lower limit value is 0 and the upper is 1440 minutes. Amongst the results of the calculation I examined the regression coefficients.

II.3. Change in time spent on the paid work by main social groups

Calculations focusing on paid work were executed for women working in non-agricultural sectors. During the creation of the sub-sample I considered Andorka's occupational status group and EGP scheme distributions. Since the numbers of independents and agriculture workers were very low in the 2009-2010, and these categories are those in which no further aggregation is possible, I decided to narrow the sample.

I made the following analytical steps: (1) I analyzed the composition of the group of employed women and the "A", "B" and "C" type time-data of paid work by the main socio-demographic and occupational characteristics, (2) then based on the time spent on paid work, I created four equally populated groups (quartiles), (3) finally using multivariate statistical procedures I scrutinized the correlations between the long- and short workday, and the background variables. I have done the calculations for both data collections. Regarding the last two analytical steps the following methodological issues need to be emphasized:

(2) For defining quartiles I sequentially arranged the employed women by their time spent on full-time employment work, and then divided this ordered sample into four equal portions. One of these portions is one quartile. The 1st quartile contains the lowest elements of the value order, for these women the time spent on paid work was the lowest; whereas the 4th quartile contains the top 25% of the sample, those women who worked the longest hours. I focused my investigations mostly on the group with the longest working time (the 4th quartile), since I assumed that this group could face the most problems for carrying out homework and other private activities.

(3) The analysis of the connection between attributes of the 1st and 4th quartile and the background variables was done using logistic regression, and I wanted to know which factors impacted most significantly the completion of the longest- (4th quartile) or the shortest (1st quartile) workday amongst employed women.

For the 1st and 4th quartiles I created 3-3 regression models (A, B, and C) which differ with regards to the background variables included into the analyses. The “A model” examined
the probability that a respondent belonging to a certain social-occupational group falls into the 1st or the 4th quartile. For this examination I used the two-variable variant of the logistic regression procedure.

The “B model” included socio-demographic attributes, and the “C model” included employment characteristics as a plus. In both latter cases I run multivariate logistic regressions.

I used the following explanatory factors: age, marital status and whether there is a child younger than 18 years old in the family (as socio-demographic attributes); and the sector and the shifts (as employment-related characteristics). While creating the models my primary objective was to run a comparative analysis of the determinants of the first and the fourth quartile occurrence, and not to provide the fullest possible explanations to the causes of the phenomenon.

The “B model” and “C model” have two principal purposes:
(1) on the one hand the included explanatory factors act as control variables; i.e. eliminate the influence of age, marital status, existence of a child, job sector, and working time shifts from the effect of the EGP schema, and
(2) on the other hand, it is possible to determine to what extent these background variables influence the examined phenomena, or whether they modify the connection between the EGP categories and the dependent variables.

The calculations following the above explained multivariate strategies were executed for both time use surveys; the results are based on altogether 12 logistic regressions.

II.4. Effect of the time spent on paid work on daily time budget

This research question was also analyzed for the above-mentioned group of women employed in non-agricultural sectors, and was examined separately for women without child, with one child, and with two or more children.

In the limited 24-hour-a-day time frame longer working time means that less time is left for other activities. During the investigation I (1) analyzed how the time spent on other activities (housework and childcare, physiological activities, leisure) changed as a result of the working time length, and (2) studied the connections between the main activity categories using multivariate statistical procedures.
The logic of this multivariate analysis was that the total usable daily time is limited, so if – for example – the leisure increases by 60 minutes, the time spent on all other activities will decrease by 60 minutes. The calculation is based on linear regression analysis, where the independent variable is the activity for which time was increased by 60 minutes, and the dependent variables are all the other daily activities.

II.5. Main determinants of time scheduling difficulties

The examination of time management difficulties was only possible for 2009-2010. The analysis was done for women employed in non-agricultural sectors, in the age of 25-59 years old and living in permanent relationship. The reason for creating the sub-sample was that women in this category have the highest economic activity and have child(ren) in the household – therefore this is the segment where time management difficulties are expected to be the most pronounced.

The following 8 factors were investigated with regards to what difficulties they posed to the daily schedule of the respondents:

a) daily schedule of partner,
b) opening hours of child(ren)’s daycare center, kindergarten, school,
c) opening hours of public agencies (municipality, land registry),
d) opening hours of public service institutions (post, hospital),
e) opening hours of banks, financial institutions,
f) opening hours of shops,
g) opening hours of hairdresser, beauty salon,
h) public transport timings and schedule.

Possible rating answers for the factors were: (1) does not cause problem, (2) causes problem but can be solved, (3) sometimes causes insurmountable difficulties, (4) can only be solved by taking a day off, (5) cannot be reconciled to one’s schedule at all, (6) does not concern to the respondent.

I created three models according to the research objectives. In the first model, I combined the 8 factors that posed time management difficulties into a binary variable, which was the dependent variable of the analysis; its categories were “no scheduling problem” (0) and “there is scheduling problem” (1). Thus if the respondent indicated at minimum one factor that it created scheduling problem – regardless of its rating – then it was counted into the “there is scheduling problem” category.
The second model was examining the „extent” of the time management problems. The scheduling problem was compounded if the respondent selected 5 or more factors where she experienced schedule conflicts. In this model, the dependent variable’s categories were: no or moderate scheduling problems (0) and compounded scheduling problems (1).

The third model analyzed the „difficulty” level of the scheduling problems, i.e. cases where the scheduling of the activities caused serious difficulties. „Serious difficulty” was defined if the respondent mentioned at least one factor that sometimes caused insurmountable difficulties or could be solved only by taking a day off or could not be reconciled to her schedule at all. The categories of this model’s dependent variable were: „no or manageable scheduling problems” (0) and „difficult scheduling problems” (1). The second and third model gave a highly differentiated picture regarding the respondents situated around the extreme poles.

The explanatory variables included in the models can be divided into three categories: (1) socio-demographic and family characteristics, (2) employment-related variables, (3) work/work-related attributes associated with private life (excluding the conventional household chores). The dependent and explanatory variables were in the individual respondents’ questionnaire and the so-called household composition sheet of time-use survey.

I followed the next analytical steps: (1) I executed a cross table analysis to describe the distribution of the 8 factors according to socio-demographic, family, workplace and employment characteristics, as well as by work / work related activities, then (2) I examined what impacts did these factors have on the occurrences of the different types of scheduling difficulties. In the latter case I used logistic regression for the execution of the multivariate analysis.
III. MAJOR CONCLUSIONS AND RESULTS

III.1. Time spent on household work amongst men and women

(1) The Hypothesis 1 seems to be supported by the results of the time spent on housework by gender: men spend more time on this activity in 2009-2010 than in 1999-2000. Despite the converging tendencies women still execute significantly more tasks at home than men. Beyond that the share of activities according to gender role perceptions became “conserved”. True, according to Kan et al. (2010), this phenomenon remains prevalent even in the Scandinavian countries.

(2) The greater involvement of Hungarian men can be detected only regarding the traditional housework and shopping activities but not regarding time spent on childcare. However, the total time spent by women on household activities has not decreased since they spent more time on childcare.

(3) It may seem that the gender-based analysis of time spent on domestic work is examining a very simple phenomenon however the results raise serious questions e.g. how permanent is the increase of time spent on domestic activities by men – that is what we can learn about the reasons behind this change. If we connect this change to structural reasons (for example, the higher proportion of unemployed men), the changes may prove to be temporary; but it may also be explained by social transformations (for example, changes in the gender roles), which could result in even higher increase of men’s involvement in domestic activities in the future.

(4) The analysis results based on the Hungarian data showed mixed picture but overall it seems to indicate that certain social processes – for example unemployment, decrease in income-supplementing work opportunities or changes in the welfare system – had a very pronounced impact on the length of time spent by men and women on domestic activities. Therefore in this area – in addition to explanations around gender role expectations – we need to consider the increasing impact of macroeconomic processes, individual life stages, and family lifecycle.
III.2. Change in time spent on the paid work by main social groups

(5) The time women spend on paid work during a workday has decreased – from 453 minutes to 432 minutes – over the last 10 years. This is validated by the quartiles-based analysis as well: even in the highest quartile women spent on average 9 minutes less with work in 2009-2010 than 10 years ago (571 minutes and 562 minutes respectively).

(6) What factors influence the length of workday of employed women – on the one hand the answers to this question are similar to those in 1999-2000, but on the other hand we see the emerging issues to consider. Amongst the examined factors there are two which have independent effect, impact on falling into both types of the extremes, and appear constant in time: the EGP schema and the marital status.
- According to the EGP schema, women employed in managerial positions and in commercial-services sectors have higher probability for falling into the 4th quartile – besides the role of socio-demographical and employment-related control variables; and this phenomenon became more prevalent over the last 10 years.
- By marital status, single women have higher probability to fall into highest worktime quartile, while married women have more chance to belong to the lowest quartile.

(7) The most significant difference between the two time-use surveys can be attributed to the employment-related characteristics. In 1999-2000 there was a strong correlation between the sector of the economy and the length of the working time, but in 2009-2010 the sector of the workplace did not have an independent effect on the working time length. However shifts became an important differentiating factor. Working evening shifts (even beyond 10PM) increased the chance of falling into the 4th quartile the most significantly. 
The results partly justified the Hypothesis 2, however besides the socio-occupational aspect there are further work-related characteristics that also have relevant impact on the length of workday.

III.3. Effect of the time spent on paid work on daily time budget

(8) The analysis based on quartiles showed that for women of the longest time spent in full-time employment not only the leisure decreased but also the time spent on physiological activities. This tendency was even more extreme if there were child(ren) in the family to take care of. Therefore the time use characteristics of mothers falling into the 4th quartile can
hardly be explained with individual choices, we can rather talk about performing mandatory activities in a limited timeframe. Women falling into the 1st quartile, however, can impact their time use with their own decisions: mothers with 2 or more children spent almost as much time with childcare activities as with conventional household chores, i.e. there was a strong pattern of child-centric time use besides the full-time employment.

(9) Examining the mutual correlations amongst daily activities we can detect that the most sensitive attribute of the time use of employed women is – naturally – the paid work: one hour longer time spent on paid job reduces – with the exception of transportation – the time spent on all other activities (more or less equally on housework, physiological activities and leisure). Conversely, 60 minutes more time spent on household activities reduces, for the biggest extent, the time spent on employment work and for a smaller extent the time spent on transportation. The leisure for women with no children appears „unpolluted”, truly free from any work activities.

(10) Household work and childcare cannot easily be distinguished for mothers (although in 1999-2000 that parental pattern was applicable among those who had one child). One possible explanation, based on the so-called intensive motherhood approach, is that within the shorter timeframe available for private life, the parents do more and more activities together with their children.

(11) I prepared the linkages in time allocation by regression analysis for the 1999-2000 as well, and results showed that there were no significant changes regarding the fundamental tendencies. For childcare we perceived the prevalence of a negative trend; if the mother spent more time on any other activities then the childcare time reduces to some extent. These results partly confirmed the Hypothesis 3, those mothers who have shorter workday preferred to spend less time on housework and more time on childcare; however, these two activities are highly joint.

III.4. Main determinants of time scheduling difficulties

(12) The daily commuting time – regardless of the type of time scheduling difficulties – has a profound and significant impact on the occurrences of scheduling problems. For most employees, commuting for the purpose of paid job is inseparable from the actual employment.
Thus this result draws attention to the positive effects of remote working, which can be especially beneficial for women with family responsibilities.

(13) Based on previous researches, it is in line with expectations that women having longer working days reported time management problems more frequently. However, it is a novel result that even the 8-hour workday contributes significantly to the occurrence of time management problems. The part-time work – despite of mixed perceptions – does have a positive impact on time management.

(14) It is also important to emphasize that non-daily or time-period specific work activities also had a negative impact on time management, because they disturbed the established family time management strategies.

(15) The Hypothesis 4 – which gives more impact to family characteristics and less impact to employment-related attributes – could not been confirmed by the first model since significant connection could not be found regarding the family composition attributes. The obtained trends suggest that the analyzed problem is concentrated on that part of the day when the family involvement is minor, i.e. the family activities are „not on the agenda” due to being occupied with the employment work.
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