



Gendered Division of Housework in Slovak Couples: Life Course and Other Factors

Martin Boďa^{1,2} · Mariana Považanová¹ · Gabriela Nedelová¹ · Anna Vallušová¹

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Abstract

The paper examines factors that explain the allocation of time and the gendered division of routine, non-routine and care activities in Slovak households. It departs from the extant literature in three notable respects. First, the division of household labor between partners is studied for Slovakia, a former Socialist country with a specific family and societal context, where female labor force participation evolved differently from Western market economies. Second, in conjunction with the established theories of gendering housework (the time availability, relative resources and gender ideology hypotheses), the explanation takes a life course perspective that breaks households down into five life stages by the presence and age of children. Third, the methodology considers simultaneity in the time spent on different tasks and in its division between the genders by adopting a model of seemingly unrelated regression equations. Slovak males are found to spend on average more time in paid employment and devote far fewer hours to unpaid routine housework than females do. Life cycle stages are found to be a reliable predictor especially for hours spent and the gendered division of care work. Life stages are manifested mainly in time use of women, whereas men adjust their time use only when their assistance is needed with children. Time allocation and the gendered division of routine and non-routine chores are primarily explained by income-based and education-based relative resources, whilst patterns of care work are in line with the life course rather than explained by time availability.

Keywords Gendered division of household labor · Life course · Time availability · Relative resources · Gender ideology · Slovak couples

Introduction

Ranging from regular to intermittent activities, unpaid household work represents an important item in the time budget of every household. Statistics reveal that people tend to spend 14% of their total time use on household duties

(Miranda, 2011), and these numbers are even higher for the workload taken by females only. International evidence reveals that women spend on average from 1.6 to 3.7 h per day on domestic chores, whereas men average from 0.9 to 2.3 h per day (Treas & Tai, 2016). Since the 1950s women have become increasingly engaged in paid employment (e.g. Bianchi et al., 2000; Lachance-Grzela & Bouchard, 2010), but household work still remains highly segregated and predominantly a woman's responsibility (e.g. Coltrane, 2000; Midgette, 2020; Treas & Lui, 2013). Yet, there are convergence theories that maintain that differences between women and men tend to diminish, though slowly (e.g. Kan et al., 2011), and they apply non-exclusive of age cohorts (e.g. Leopold et al., 2018). This convergence seems to be driven by a reduction of activities on the part of women and an increase in child care time for both genders (Pailhé et al., 2021).

Much effort has been dedicated to understanding the factors that drive the gendered division of housework in couples and to finding an explanation for why the traditional division

✉ Martin Boďa
martin.boda@outlook.com

Mariana Považanová
mariana.povazanova@umb.sk

Gabriela Nedelová
gabriela.nedelova@umb.sk

Anna Vallušová
anna.vallusova@umb.sk

¹ Faculty of Economics, Matej Bel University in Banská Bystrica, Tajovského 10, 975 90 Banská Bystrica, Slovakia

² Faculty of Natural Sciences, Jan Evangelista Purkyně University in Banská Bystrica, Pasteurova 15, 400 96 Ústí nad Labem, Czechia

of unpaid housework persists in Western countries despite changing conditions (Treas & Drobníč, 2010). This controversy incited extensive research on micro factors behind the distribution of domestic chores (e.g. Aassve et al., 2014; Brines, 1994; Coltrane, 2000), and three dominant hypotheses have been put forth: time availability, relative resources and gender perspective (e.g. Coleman, 1988). The call for a more complex theoretical understanding of the many psychological, interpersonal, institutional, cultural and economic forces involved in this process may be partly answered by including the life course of the household amongst explanatory factors. Albeit life course considerations originate in the classical “family cycle” of Glick (Bühlmann et al., 2010), life course in conjunction with the gendered division of household labor is still not well documented in literature. Otherwise scant literature suggests that housework division varies across age groups (e.g. Anxo et al., 2011; Bianchi et al., 2000; Kil et al., 2016). A life course perspective is particularly useful in exploring the mechanisms that shape the gendering of housework over time regardless of ever-present generational gaps (Baxter et al., 2013).

Whereas in Western countries a multitude of studies are available to an international audience that examine the gendered division of household labor and its factors, less attention has been devoted to former Socialist countries. Scarce examples include a study for Czech households by Chaloupková (2005) available only in Czech, or a study by Chorvát (2015) focused on Slovak households available only in Slovak. Albeit Kaščáková et al. (2013) is a study on Slovak households in English, these authors explored only time use in different activities (but not the gendered division), and did not design their analysis in tune with sociological explanations entertained in household research. There are also comparative studies utilizing data from international surveys by Treas and Trai (2016) and Mandel and Lazarus (2021). Such countries are put typically in a panel international comparative setting as one of several surveyed countries (e.g. Aassve et al., 2014; Kil et al., 2016). This compels a unanimous presence of explanatory factors that must then apply universally across a panel of countries. The omission of former Socialist countries from this kind of family research is obviously due to the rarity of valid data, which is unfortunate as the way of life, societal manners and household economies in post-Socialist societies are quite different from those in societies with traditional market economies.

The paper seeks to fill this gap in research and focuses on the gendered division of housework in Slovak heterosexual couples whilst considering not only the relative distribution of tasks between the genders, but also the amount of time spent on three categories of housework activities: routine housework, non-routine housework and care work. By using survey data on time use in Slovak households collected in 2018, the paper applies a life course perspective and three

dominant theories of the gendered division of household labor to examine factors that explain its time allocation and division between different categories. With an emphasis laid on a household’s life cycle and traditional explanations put forward in household research, the analysis is performed by using two different approaches based on seemingly unrelated regression equations (SURE). Both a least squares and a tobit framework are employed simultaneously to the three categories of housework to explain absolute time use of all household members as well as absolute and relative time use of male and female partners. Both married and cohabiting couples in different life phases are included in the analysis, and the adopted classification of life phases is adapted for Slovak conditions from the stylized household life course typologies used by Anxo et al. (2011) and Kil et al. (2016). Their taxonomy relies both on the age of the woman and on the presence and age of children, and categorizes households into five non-overlapping consecutive categories running temporally from childless couples to empty nesters.

The choice of Slovakia as a post-Socialist country has two special benefits. For one thing, it is a country where the dual-earner model has been firmly established since 1948 when the “obligation to work” was constitutionally enacted equally for men and women (Constitution of the Czechoslovak Republic, 1948, Article III). The state required presence of both genders in paid employment and enforced their contribution to the advancement of Socialist society. This policy of regimented emancipation at work and formal 100% employment has brought up generations of women for whom going to paid occupation is completely normal and staying at home without a good reason is construed as unnatural. Western women may find it difficult to imagine that a Slovak woman going to work does not do this necessarily with an intention of building a career, but only personally internalizes societal norms to which she herself adheres. The long state policy of fostering female employment has left Slovak women with specific attitudes towards employment that affect their views upon engagement in household work. Whereas bargaining that takes place within a household and decides which partner goes to work and which partners remains in charge of the household receives immense attention in sociological research (e.g. Baxter & Hewitt, 2013; Evertsson & Neramo, 2004), for Slovak couples this kind of bargaining is irrelevant since for the Slovak woman employment is the norm. This must inevitably limit the explanatory scope of the relative resources theory built alongside bargaining processes. Bargaining in a Slovak household underlies typically only the division of intrahousehold labor and excludes paid employment.

For another thing, Slovakia is an example of a country where there have been significant macroeconomic changes for some decades (precisely, since 1989). The transformation from a Socialist system toward a democratic regime

started in the early 1990s, and threw most families into the insecurities of a market economy to which Slovak households were maladjusted. Various age cohorts in Slovakia lived their productive age (which is a life phase with strong pressures to perform housework) in different societal and political systems that provided diverse conditions for families. Especially people who are nowadays close to retirement lived their most productive years during the transformation process. The Slovak 1970s baby boom generation lived their childhood in the Socialist system, and are now in their most productive years, raising their own children. It should be noted that the life cycle categories introduced in the paper for Slovak households indirectly measure generations that have emerged in this sociological metamorphosis of Slovak society in the past few decades.

For Slovakia, a life cycle perspective in examining the gendered division of housework seems advantageous since in the era of Socialism young families were supported by various instruments of social policy and simultaneously women were encouraged to work in paid employment whilst having room for taking care of the family (Džambazovič, 2015, p. 16; Ferge, 1997, p. 160). This changed gradually over the 1990s, resulting in a highly differentiated experience of age cohorts that are also captured by the life cycle categorization considered. Whilst empty nesters were born and lived a considerable part of their life in the past regime, childless couples can only have life experience with a period when Slovakia was pushed more towards a Western mode of life as perceived in all societal spheres including the labor market or family models. Such historical forces are imprinted upon the social trajectory of households, in consequence of which life cycle is inseparable from changes in societal conditions (Elder, 1998, p. 2). Finally, the adjustments necessary to work through the transformation period also made Slovak society drop traditionalistic views upon gender roles (Chorvát, 2004; Džambazovič, 2015) and embrace egalitarian familism characteristic of the dual beliefs that women should focus on their careers and contribute to the provision of the household in the same manner as men do, whilst finding simultaneously their self-fulfillment at home (Knight & Brinton, 2017).

The findings generally support the role of life stages in explaining the amount of time that households and their members spend on domestic chores, especially care work. That said, male partners engage in routine and non-routine chores constantly through the life course, all else equal. Otherwise, much accords with the stylized facts formulated for other countries. In all life stages, Slovak men work more at paid employment and carry out more non-routine chores, but women perform more routine and care work. Relative resources provide an apt explanation for routine and non-routine housework, whereas time availability applies best

to care work. The results for gender stereotypic views that transpire with care work are somewhat mixed.

In the hope of advancing the scientific knowledge in the field, this paper makes a contribution to the scholarly literature in three chief respects. First, it focuses upon Slovakia, which is a case of a post-Socialist country with specific societal conditions different from those of Western countries. Second, it blends the life course perspective with the traditional theories of the gendered division of household labor. Finally, by applying an appropriate econometric methodology, it accounts for the simultaneity that underpins time allocations between different categories of domestic work and between the genders.

The text is organized as follows: After reviewing the main concepts in the gendered division of housework with an emphasis on life course factors and the chief sociological theories, Slovak conditions and country-specific features are described in order to substantiate the research interest. The paper continues with a description of the data and methodological procedure, then presents the results alongside a discussion, and finally summarizes and concludes.

Theory and Previous Research

The purpose of studying the division of household labor is to gain an understanding of how the genders interact and cooperate at a micro level (Aassve et al., 2014). An accepted, yet loose, definition of household labor (or interchangeably housework, domestic work) is that it is “unpaid work done to maintain family members and/or a home” (Shelton & John, 1996, p. 300), which is a concept sufficiently broad to include child care, household management, and various kinds of emotional work. Frequently, only routine and non-routine domestic activities are included in household labor, which gives only a partial picture on how domestic tasks are shared by the genders (Coltrane, 2000, p. 1210). In order to correct for this selectivity, this study includes in household labor also care work that is expended in favor of household members, not necessarily children. The division of housework is well known to be shared unevenly by the genders, and several competing explanations have been offered in literature. In spite of some liberty at the terminology (Coleman, 1988), three prominent hypotheses in household research have been proposed and debated: the time availability hypothesis, the relative resources theory, and the gender ideology perspective (e.g. Aassve et al., 2014; Coltrane, 2000; Coverman, 1985). Each approach points to particular processes or factors that underlie the gendered division of housework.

The time availability hypothesis focuses on how family members allocate time between market and domestic work, maintains that couples are rational to allocate time

spent on housework on the basis of relative hours spent by the partners in paid market labor (e.g. Bianchi et al., 2000; Kim & Cheung, 2019; Mandel & Lazarus, 2021). Another explanatory factor is also the amount of housework to be done, which is frequently proxied by the number of children (e.g. Davis & Greenstein, 2004; Evertsson & Nermo, 2004; Lewin-Epstein et al., 2006). In brief, time availability posits that the amount of time the female partner spends on housework is inversely related to her time spent in paid employment, and that it is positively related to the time spent in paid employment by her male partner. Time-availability gained an extensive support for a number of countries in international comparisons (e.g. Aassve et al., 2014; Gershuny et al., 2005).

The relative resources theory argues that allocation of housework derives from the relative power that each gender has. Put otherwise, the claim is that the level of resources a partner brings relative to the other determines how work is distributed within the household (e.g. Brines, 1994; Coverman, 1985; Kolpashnikova & Kan, 2020). The relative resources hypothesis is in line with bargaining theory (e.g. Lundberg & Pollak, 1996; Stier & Lewin-Epstein, 2000; Alvarez & Miles, 2003). Bargaining models instruct that an increase in the woman's economic opportunities indicated by her income or education outside the home improves her bargaining position within the household, resulting in a decrease of her contribution to household production (Sevilla-Sanz et al., 2010). They predict a more egalitarian allocation of time within the household as the female's relative resources increase. Empirical research finds evidence for education-based relative resources for numerous countries (e.g. Davis & Greenstein, 2004) as well as for income-based relative resources amongst Swedish or Australian couples (Evertsson & Nermo, 2007; Baxter et al., 2013).

Time availability as well as relative resources implicitly or explicitly assumes that housework is seen as an undesirable task and that both genders attempt to minimize the amount of housework they do (Greenstein, 2000).

The gender ideology hypothesis claims that the division of household labor within a household is predominantly shaped by the attitudes that the partners display towards their roles (e.g. Mandel & Lazarus, 2021; West & Zimmerman, 1987). The traditional portrayal of the gender roles is grounded in the male breadwinner and female homemaker family construct, and implies a non-egalitarian division of housework. If such ideological views are upheld by the partners, it affects the actual roles they play in the household. This concept is rooted in the idea that individuals internalize gender-role expectations held by others, and consequently that gender affects the household decision process itself

(Brines, 1994). Yet, predictions suggested by gender identity norms are sometimes for pragmatic reasons overridden by time availability and relative resources that often interact with possibly non-egalitarian attitudes of both partners (Bertrand et al., 2015; Lothaller et al., 2009, p. 145).

As it happens, there is not dominant consensus on the most persuasive explanation for the persistence of the unequal gendered division of household labor (Bianchi & Milkie, 2010). Nonetheless, Coltrane (2000, p. 1213) stresses that numerous psychological, interpersonal, institutional, cultural and economic forces are involved, and that more explorations are needed to gain a fuller understanding. It is also accepted that these three chief theories have alone limited power in explaining the imbalance in the division of housework between the partners, and that some other variables are needed (Lothaller et al., 2009). For instance, consistent findings highlight the relevance of race (e.g. Shelton & John, 1996) or marital status (e.g. Blair & Lichter, 1991; Davis et al., 2007).

One group of factors entertained in this study, of a possibly significant impact on the division of housework, is life course factors. However, as Coltrane (2000, p. 1215) points out, the life course perspective does not generate coherent and unified explanations, and reflects instead a loose conglomeration of hypotheses rather than a unified body of theory. Some results suggest that the division of housework varies across age groups (e.g. Anxo et al., 2011; Rexroat & Shehan, 1987). One approach is to pinpoint a special event in human life and examine how this event influences the division of housework. For example, transition into marriage and childbirth are expected to increase the woman's work in the household more than the man's (Baxter et al., 2008; Dribe & Stanfors, 2009; Martinengo et al., 2010). There is ample evidence that division of housework changes over the course of marriage after a childbirth, and household practices become then more traditionalized. Most husbands reduce their share of housework and couples end up in a 'traditional' or 'strongly traditional' arrangement with the wife doing most or all of the cooking, dish-washing, cleaning and laundry (Grunow & Evertsson, 2019; Grunow et al., 2012; Schober, 2013). Another life course predictor is age (e.g. Davis & Greenstein, 2004; Evertsson & Nermo, 2004; Lewin-Epstein et al., 2006), but with somewhat mixed patterns. Some results suggest that younger women tend to spend less time doing housework and share housework more with their partners than older women (Hersch & Stratton, 1994), and that retirees spend more time on housework than continuously employed partners (Szinovacz, 2000). At any rate, this paper follows the approach of Anxo et al. (2011) and Kil et al. (2016), and the life cycle is defined not only by the age of the woman, but also the presence and age of children in the family. A total of five life stage categories are defined ranging from childless couples to empty nesters.

Societal Conditions of the Division of Household Labor in Slovak Households

A noteworthy aspect that has shaped family life and also the organization of domestic labor in Slovak households with its fading-away impacts to date is rooted in the philosophy and non-market benefits of the former Socialist regime that collapsed in 1989. Family life in the former Eastern block developed in a way completely different from that in Western countries. Chorvát (2007) attributes this to a coincidence of several circumstances. First, emancipation of women was enforced as a state ideology, not through a civic movement, and it was reduced to an “obligation to work” instead of the right to work regardless of sex (Constitution of the Czechoslovak Republic, 1948, Article III). Second, the traditional strong inclination of women for a family was paradoxically strengthened by the obligation to enter the labor market. The existence of gender gaps in pay and employment positions encouraged them to turn to their families as a *raison d’être*. Third, household production was indispensable due to a constant lack of goods of everyday consumption. Although the state provided a variety of pro-family measures, the term “double-burden” applies more aptly to the Eastern Bloc than to Western counterparts, as there was no possibility to outsource. The dual-earner model of household was an official policy of the state, and is now common for Slovak households. Although the right to work is currently not guaranteed by the constitution as it was before 1989, other factors sustain the persistence of the dual-earner model in Slovakia. For many couples, especially those with children, wage rates are at present relatively low in comparison with their costs of living. The result is that for many people it is a simple necessity that both partners are in a paid employment. Employment rates in Slovakia for both genders are relatively high. Whereas male and female employment rates are comparable to those of most European countries and agree with EU28 averages, part-time employment is less common or proliferated across Slovak women than in other European countries. Yet, empirical evidence suggests that a higher prevalence of female part-time employment and long parental leaves induce gender specialization in household labor (Hook, 2010). With full-time employment prevailing in Slovakia, parents face a significant time burden.

Labor force participation of women after childbirth is affected by parental leave policy. With the statutory length of paid parental leave being 3 years, Lachance-Grzela and Bouchard (2010, p. 775) describe parental leave policy in Slovakia as “generous”. Albeit maternity and parental leaves are codified as gender-neutral, it is Slovak women who prefer to stay with the child. The duration of the

maternity or parental leave ranks amongst the longest in the EU28. The return to work is complicated by the fact that spatial availability of child care facilities is not satisfactory. Most parents are forced to resort to assistance and care provided by grandparents when the child is ill, and au pair services are extremely rare. Grandparents also help accompany their small grandchildren to a nursery or school. This sharing of care is operational also backwards and adult children care for their old parents. Slovakia belongs to OECD countries in which overall support to families with young children is low and clearly lags behind (Thévenon, 2011).

A further distinction of Slovakia from countries where household research blooms is that there is subtle or even negative education gender gap. Comparatively, schooling is fairly cheap in Slovakia and there are not marked disparities in educational attainment of men and women. Naturally, women with higher education are more eager to have a paid employment, even if their partners can make ends meet and provide for the family.

The described socio-economic backdrop of family life in Slovakia substantiates inquiry into the role of factors of time availability, relative resources and gender ideology in the division of household labor between the genders. In view of the changes that Slovak households have undergone over the past decades, a life-cycle perspective seems not only a sociological interest, but also a necessity to correct for the different conditions in which Slovak generations spent their early years since life cycle categories simultaneously capture cohort effects.

Data and Methodology

The data for the analysis were collected in 2018 by the questionnaire method under the project VEGA # 1/0621/17 carried out at the Faculty of Economics of Matej Bel University in Slovakia. Eight-part questionnaires were distributed amongst households and inquired into manifold aspects of time allocation of all household members. Here, a household was defined as a group of people who share the same budget. The research sample consisted of 1819 individuals within 732 households, and was representative by sex, age and education of respondents. The survey was conducted in April and May 2018, and its unique feature is that it provides aggregate data that cannot be obtained from available official statistics. In addition to conventional socioeconomic descriptors of households and household members, the data contain information on the structure of household activities, selected aspects of paid employment or patterns of commuting to work. Hence, both the household level and microeconomic characteristics of individuals were measured. For the purpose of the analysis, the sample was

restricted to heterosexual couples, either married or cohabiting. Other households were disregarded, and the resulting sample consisted of 403 couples with information sufficient to determine the life cycle stage of their household. The analysis thus nominally relied upon 55% of all respondent households. Nonetheless, owing to incompleteness of some responses, the effective sample size varied across the subsequent analyses.

In the questionnaire, every household member was asked to indicate an approximate number of hours per week normally spent in paid employment as well as on performing unpaid housework across different categories adopted from the HETUS methodology (Eurostat, 2009, 2020). Note that this preference only affects the grouping of unpaid household activities and has no effect upon actual measurement of time allocation. Since some activities (such as gardening) are highly intermittent and done only a few months per year, respondents were also asked to indicate how many months during a year they performed the given activity. On this basis, average hours per week were then calculated for each household member. Background information on the household and details of the household's members concerning their education, employment and time devoted to paid and unpaid work was transformed into a set of variables per household.

Unpaid household labor was recognized and measured in three disparate categories: routine housework, non-routine housework and care work. Whereas routine housework is made up of food management, household upkeep, making and care of textiles; non-routine housework represents gardening, pet care and tending domestic animals, repairs and construction of dwelling, shopping and services. Finally, care work consisted of child care, adult care and care for people with disability. Albeit in many studies only child care is monitored (e.g. Bianchi & Milkie, 2010, pp. 707–708) or rather excluded (e.g. Lachance-Grzela & Bouchard, 2010, p. 769), in some studies child care and adult care are added to one category (e.g. Ophir & Polos, 2022). Merging different types of care work into one category may not be ideal since they constitute differently perceived activities. For instance, child care is considered to be one of the most enjoyable activities of household labor (Connely & Kimmel, 2015; Guryan et al. 2008). In addition, child care is composed of qualitative different tasks than traditional routine and non-routine housework, and from the relative resources perspective is believed to be negotiated separately (Sullivan, 2013). It is not uncommon in Slovak households that several generations tend to share the same dwelling; and typically adult children care actively for elder parents (or even grandparents). This attitude is imprinted as a cultural responsibility to the older generation, and many people are reluctant to move their relatives into a nursing home. It does not matter as to whether it arises as a moral obligation or in fear of

societal reprimands, adult care is as common as child care and its role is even multiplied when household life cycle is taken into account.

Modeling Framework

The analysis centers upon three metrics of involvement of household members in domestic chores and seeks to explain them in a regression manner by life course and the prominent theories of the gendered division of household labor. Classified into routine, non-routine and care activities, these metrics include:

- (i) Average hours per week spent on housework by all household members in each category,
- (ii) Average hours per week spent on housework by male and female partners in each category,
- (iii) Average hours per week spent on housework by the female partner relative to the male partner in each category.

Out of these, measures (i) and (ii) are absolute, whereas measure (iii) is relative. They are all limited to the non-negative part of the real axis and may display a sizeable occurrence of zero values whenever a household or its members do not undertake a particular type of household activity. This issue is well understood in time-use research, and a debate is held on the appropriate statistical method producing reliable estimates when regressions are run to explain time allocations in household tasks. In essence, the discussion confines itself to either adopting the traditional estimation approach based on ordinary least squares (OLS), or using a tobit model that is capable of explaining the limited support of time-use data (Craig & Mullan, 2010; Stewart, 2013). The latter is specifically suitable when no time allocations are reported in consequence of actual and natural nonparticipation (e.g., if a young family has no children yet, no care work is actually needed) as opposed to a temporary absence from activity that is frequently observed with time-diary data. It seems that OLS is generally more prevalent (e.g. Chaloupková, 2005; Craig & Powell, 2018; Evertsson, 2014; Hook et al., 2021; Kroska, 2004) and more robust (Stewart, 2013) in spite of a priori statistical reasons to adopt the tobit approach. In order to address this ambiguity, the analysis relies upon both least squares and tobit, and applies them in a comparative fashion to ensure robustness. Nevertheless, only the results for the least squares approach are actually reported in the text since the statistical output is rather extensive and the results of both approaches are qualitatively very similar, if not identical.

Furthermore, to assure statistical validity of the modeling framework, these approaches are applied to measures (i) to

(iii) simultaneously by considering the different three categories of household labor. Typically, separate regressions are run for both male and female partners or for different housework categories without any consideration of possible dependence or a trade-off that must exist between different time uses due to the existence of time constraints (e.g. Craig & Powell, 2018; Evertsson, 2014; Hook et al., 2021; Lewin-Epstein et al., 2006). Only rarely does empirical research recognize the need to model equations for different categories of household or household members simultaneously (e.g. Hallber & Klevmar, 2003; Bloemen et al., 2010).

It must be noted that measure (i) represents total average time spent per week by all household members upon a particular type of housework. Unlike the other two measures, it is not restricted only to the male and female partner, but includes also other members such as children or other cohabiting persons (typically, elderly members sharing the household budget). Measures (ii) capture total average time spent per week by the female and male partner on household tasks of a particular type in absolute terms, and measure (iii) confronts the time use of the female and male partner on household tasks of a particular type in relative terms. Measure (iii) can be conceptualized in different ways. In order to explain this assertion, it is assumed that a household consists of K members $H = \{1, 2, \dots, K\}$ who on average invest $p_1^j, p_2^j, p_3^j, \dots, p_K^j$ hours per week into housework of type j , where without loss of generality members 1 and 2 are the male and female partners. Thus, measure (iii) for housework of type j can be expressed simply as p_1^j/p_2^j , which can be restated in two equivalent forms as $p_1^j/p_2^j = (p_1^j/(p_1^j + p_2^j))/(p_2^j/(p_1^j + p_2^j))$ or $p_1^j/p_2^j = (p_1^j/\sum_{i \in H} p_i^j)/(p_2^j/\sum_{i \in H} p_i^j)$. In either case, the contribution of the female partner (to the female and male partners' participation on housework or to all housework) is considered relative to the male partner. The male partner is taken as a numéraire (i.e. comparative standard) to which the female partner is compared as to whether her involvement is greater or smaller.

It is also evident that each measure sheds a different light upon the volume and division of household labor in a household, i.e. how much time a household allocates to housework in total, how much time only the male and female partner works on domestic chores, and how they share domestic work in terms of time use. In order to make the three measures operable, it must be conceded that there are households in the sample where male (or seldom even female) partner did not participate in domestic chores with a zero input of hours per week to housework. As pointed out, these situations were handled by two means. For estimation with least squares, partial winsorization was applied to zero hours of housework in any category and likewise to zero or full shares. Zero hours of housework in measures (i) and (ii) were reset to 0.005, and zero or unit shares on housework in measure (iii) were replaced

in a similar vein by 0.005 and 0.995, respectively. For tobit estimation, no such adjustment was applied. On the one hand, the winsorization strategy was implemented also with the purpose of suppressing the effects of atypical observations. On the other hand, the results of both approaches depart negligibly.

The gendered distinction of housework in measures (ii) and (iii) is motivated by the stylized fact that routine tasks, such as cooking, cleaning, and shopping for food, are performed far more often by women, whereas occasional tasks, such as small repairs or outdoor projects, are done by men (e.g. Blair & Lichter, 1991; Kan et al., 2011). Separation of the amount of housework done by the male and female partner may be helpful in identification of different micro factors applicable to the genders.

In order to avoid pitfalls associated with modeling of measures (i), (ii) and (iii), the three categories of housework are cast into a model of seemingly unrelated regressions (SURE) developed originally by Zellner (1992). For each category of housework, a separate equation is posited with possibly different predictors, and errors of these equations are allowed to be contemporaneously correlated. For each measure a system of equations encompassing the three categories of housework is formulated as a single SURE model, which is either considered in a traditional least squares framework (Greene, 2018, pp. 328–336) or handled as a multivariate tobit model (Amemiya, 1974). Hence, the SURE models considered here consist of three equations introduced specifically for each category of household labor [with measures (i) and (iii)] and six equations pertaining to each category of household labor and each partner [with measure (ii)]. Each equation has its own (potentially different) predictors, regression parameters and zero-mean homoskedastic errors whose skedastic structure is governed by a non-spherical covariance matrix. Whilst for a single household correlation between the errors is allowed, the errors for different households are assumed uncorrelated. Whilst in the traditional linear SURE model a conventional estimator is estimated generalized least squares (GLS), in the multivariate tobit model maximum likelihood (ML) is an adequate choice. The predictors across equations are dictated by the ambition to examine the effect of life cycle and validity of the main sociological hypotheses. These predictors and additional variables controlling for specific household conditions are described in the next paragraphs.

Finally, in order to suppress possible deviations of the sample from the population arising on account of the sampling employed in the survey design, sampling weights are introduced into the estimation of these SURE models by GLS or ML as appropriate. Defined in a usual fashion, these ensure that the weighted data set is representative of the population of Slovak couples living in a household.

Table 1 Predictors and controls used in the analysis

| Variable | Its function |
|---|---|
| Comments & notes on its definition | |
| Life cycle | Predictor for life stage effects |
| Five nominal categories adapted from Anxo et al. (2011) and Kil et al. (2016) modeled by dummy variables: <i>young childless couples</i> (woman under 46 years of age, no resident children), <i>couples with the youngest children</i> (the smallest resident child under 6 years of age), <i>couples with young children</i> (the smallest resident child between 6 and 15 years of age), <i>couples with teenage children</i> (the smallest resident child between 16 and 25 years of age), <i>“empty nest” couples</i> (woman older than 46 years of age without resident children) | |
| Relative time in paid work | Predictor for time availability |
| A cardinal variable defined as $(\text{timeM} - \text{timeF})/(\text{timeM} + \text{timeF})$, where timeM and timeF are times spent per week in paid employment by the male and female partner, respectively. It ranges between -1 (the male has no paid work) and $+1$ (the female has no paid work). A value of zero implies a balanced scale of time spent in employment by both partners. When both partners do not work (e.g., both are retired), a value of 0 is imputed for this ratio | |
| Income dependence | Predictor for relative resources |
| A cardinal variable defined as $(\text{payM} - \text{payF})/(\text{payM} + \text{payF})$, where payM and payF are average incomes per month from paid employment of the male and female partner, respectively. It ranges between -1 (the male has no income) and $+1$ (the female has no income). A value of zero implies equal incomes of both partners. (There was no situation of partners with zero incomes both) | |
| Female more educated/Male more educated | Predictors for relative resources |
| Two dummy variables measuring relative education of the female and male partner, respectively. A value of one indicates that the male or female partner is more educated. A combination (0,0) indicates an equal level of education for both partners. A combination (1,1) is impossible | |
| Female's views on gender roles/Male's views on gender roles | Predictors for gender ideology |
| Two dummy variables measuring the degree of agreement with the following statement: “The husband should perform paid work and the wife should take care about the household and children.” The opinions were registered on a Likert scale from strongly agree (1) to strongly disagree (5) were converted to a value of one in the case of gender-stereotypic answers 1 and 2, and a value of zero otherwise suggesting a neutrally shaped or more progressive attitude | |
| Household size | Control for specific household conditions |
| A cardinal variable measuring the total number of household members, including the male and female partner | |
| Municipality size | Control for specific household conditions |
| A cardinal variable measuring the number of inhabitants in a town or village where the household resides (in thousands) | |
| Living in a house | Control for specific household conditions |
| A dummy variable representing whether the household lives in a house. A value of zero suggests that household members share a flat or reside otherwise (e.g., in a rented room) | |
| Living in marriage | Control for specific household conditions |
| A dummy variable representing whether the couple is married. A value of zero implies cohabitation | |
| Both non-working | Control for specific household conditions |
| A dummy variable representing whether both partners are not engaged in active paid employment (e.g., they may be unemployed or retired). A value of zero implies that at least one partner is has a paid employment | |

Variables Explaining the Extent and Division of Household Labor

The predictors and controls are summarized in Table 1 with their definitions and explanatory notes, if necessary. The central predictors are variables appertaining to the life course of a family and to the three sociological hypotheses of gendered division of household labor. The choice of particular indicators for these stylized constructs was primarily guided by their relevance to theoretical accounts regarding the division of housework, but was simultaneously limited by the availability of suitable measures distillable from responses collected by the questionnaire. Some of these variables have a nature of relative measures that confront time constraints or personal resources of the male partner

with those of the female partner. In spite of criticizability, in this study they are also used to explain absolute time use in step with metrics (i) and (ii) since time spent on domestic chores by either partner and by all household members is an outcome of the bargaining mechanism that is instituted spontaneously within a household. Aside from gender role attitudes of both partners, internal household bargaining is determined by their time commitments elsewhere or their intrahousehold relative status. Some amount of household work must simply be done, but the bargaining mechanism pinpoints the respective household members or the category of domestic chores for which they will assume responsibility. Furthermore, the partners or the household may even decide to recoil from domestic chores, and the consequence is lower absolute time use.

Life course characterizes stages in the life of a household that are broken down into five stylized categories of a life course typology adapted from Anxo et al. (2011) whose operationalization is in greater detail described in Table 1. This typology is founded on widely observed and known transitions and phases that couples living in a common household undergo. The classification starts with a category of childless couples and ends with a category of “empty nesters”, and is reasonable since single persons living either with their parents or alone are excluded from the sample. In line with Kil et al. (2016) the categorization of households is guided by the age of the woman, the presence of children and the age of the youngest resident child. Ages 6 and 15 are important turning points in the life of children and adolescents in Slovakia since at the age of 6 years children usually begin compulsory education at primary schools and at the age of 15 years they usually commence secondary education at high schools. Having and raising a child is a major life course event that alters how men and women live and affects their time allocation in many a respect (Craig & Mullan, 2010). For this reason, life course stages describing families without children are listed separately. Yet, Anxo et al. (2011) themselves point out several drawbacks of their approach. The analysis is based on cross-sectional, not longitudinal data, but they still serve well in describing the gendered division of domestic unpaid work in a socio-economic context applicable to Slovak conditions. In this context, life stage categories through childless couples to empty nesters apply to different generational cohorts living in the past few decades in Slovakia. Couples with teenage children and empty nesters were raised and spent their juvenile years in the Socialist era, whereas couples with small children and childless couples in the transformation period of the 1990s. Interestingly, Apps and Rees (2005, p. 444) argue that use of cross-sectional data has its advantages. It is also necessary to stress that this typology does not cover all types of partner life. By focusing on heterosexual couples, cohabiting homosexual couples go unrepresented. The trouble of assigning genders to gay partners is minor in comparison with the fact that gay partnerships are not legally recognized in Slovakia, and they cannot adopt children as a couple.

The time availability perspective stems from the time use of market activities of both partners, and its consideration requires comparing time spent in paid employment of one partner to that of the other. To that end, a time availability metric is set-up that translates absolute time that both partners on average spend at work into an interval $[-1, +1]$. *Relative time in paid work* attains these boundary values $-1/+1$ whenever the male/female partner spends (at least) some time at work per week and the other spends at work no time at all. This variable captures relative availability of either partner for housework, but overlooks that some

amount of housework must simply be done. To some degree, this second dimension is carried by life cycle categories.

Relative resources are measured in two manners that associate the relative status of male and female partners with their income and educational attainment. Economic dependence is measured by a metric that was originally proposed by Sorensen and McLanahan (1987) and that is now very popular in time-use studies (e.g. Brines, 1994; Greenstein, 2000; Lewin-Epstein et al., 2006). *Income dependence* compares the incomes of both partners and translates them into an interval $[-1, +1]$. The scale is bipolar with endpoints $-1/+1$ signifying that the male/female partner is completely dependent on the other. The midpoint of the scale, 0, means that the partners earn equal incomes and their economic inputs to the household budget are balanced. This relative income metric seems preferable than absolute earnings since some researchers find that women’s housework time is affected strongly by women’s relative earnings rather than by their absolute earnings (Baxter & Hewitt, 2013). To measure the latter aspect of relative resources, two dummy variables, *Female more educated/Male more educated*, were set up to indicate whether one partner has a higher level of education than the other in line with the generally accepted argument that educational status affects the bargaining power of an individual within the household (e.g. Coverman, 1985.). The comparison was based on three levels of education: primary, secondary and tertiary.

Finally, both partners were inquired about gender ideology and indicated their approval with the statement: “The husband should perform a paid job and the wife should take care about the household and the children.” Strong or moderate agreement with this statement was represented separately for either partner, and yielded a set of two dummy variables, *Female’s views on gender roles/Male’s views on gender roles*, with a value of 1 whenever the respective partner harbors traditionalist gender-stereotypic opinions.

The predictors catalogued above are entered into regression equations automatically, whereas other predictors are allowed under the proviso that they are supported by the Bayesian information criterion (BIC), which is a standard measure employed in model selection favored against the more common Akaike information criterion (AIC) owing to its consistency and parsimony (e.g. Claseskens & Hjort 2009, pp. 106–107). *Household size* is a natural predictor since the size of household tasks must be inevitably (positively) correlated with the number of household members, and can also be valid in explaining the gendered division of household tasks, especially when the household is not childless or an “empty nest”. *Municipality size* controls for the character of the environment in which the household lives on the axis of urban and rural life. Urban conditions (indicated by a higher number of inhabitants in the resident municipality) typically subsume a different kind and scope of domestic

chores and suggest a different organization of household labor than rural conditions do. It also acts as a relevant proxy for possibilities of outsourcing domestic tasks that are more accessible in more developed urban areas. A larger size of the municipality points to such areas and signals better prospects of finding a hired help. A similar function is fulfilled by the dummy variables *Living in a house* and *Living in marriage*. Traditionally, life in a house is rather demanding on time allocated to routine and intermittent activities than life in a flat or a rented dwelling. The latter variable then confronts couples with marital and live-in relationships. Other studies suggest that after a wedding the division of household labor changes (Aassve et al., 2014; Davis et al., 2007; Klímová Chaloupková, 2018). *Both non-working* is included in order to complement the time availability and relative status metrics in an attempt to identify whether labor market choices of both partners are interlinked and how these effect organization of housework (like in Lewin-Epstein et al., 2006). A reasonable approach is to contrast dual-earner couples, non-working couples and single-earner couples. Yes, the dummy variable capturing the dual-earner status was not found relevant, and is disregarded accordingly. The function of predictors *Household size*, and *Both non-working* is to some degree disputable. Here these predictors are seen as controls and are not assigned to the time availability theory. On the contrary, Lewin-Epstein et al. (2006, p. 1153), Shelton and John (1996, p. 307), plus some others, interpret them as time availability metrics (although these studies accentuate the number of children instead of *Household size*).

One caveat worth making is in relation to the interpretation of explanatory factors or predictors since the adopted modeling approach handles them as exogenous. Most of them predate intrahousehold decisions on the allocation and division of time to household activities and have a predetermined status. As noted by an anonymous reviewer, some factors may interact with the bargaining mechanism within the household and affect the trade-off between time spent in paid occupation and time spent in household tasks of either partner. In such a case, these predictors would have to be treated as mere correlates due to their endogeneity, and the interpretation would have to be modified accordingly. Yet, both *Relative time in paid work* and *Income dependence* are deemed here as exogenous variables determined by labor market conditions and opportunities rather than a result of the intrahousehold bargaining process. As explained at the outset, for Slovak women participation in paid occupation is an integral part of their societal identity, which entails that bargaining is predominantly limited to the division of domestic chores.

Statistical Summary of the Data

The basic statistical summary of the variables employed in the analysis is for the nominal sample of 403 households displayed in Tables 5, 6 and 7 in the Appendix. As being unadjusted by the sampling weights, the reported values do not subscribe readily to the entire population of Slovak couples living in a household, but merely to the sample. Population-level hours spent by households and male and female partners are presented in the next section. There are discernible notable differences in the time devoted to routine, non-routine and care work tasks as well as between the time allocations of male and female partners. The minimum/maximum ranges on the time allocation variables (including the ratio of male's and female's shares) evince that accomplishment of domestic chores in Slovak households is heterogeneous and there is a vast diversity in the characteristics of households (but this is symptomatic for households in other countries, too). The sample contains households where obviously the female partner is burdened with all, if not most, household tasks, but also households where the toil is reverse. Except non-routine tasks, the former pattern is prevalent. Table 6 shows that most households participating in the sample are positioned somewhere in the middle of life cycle. Childless couples with a frequency of 50 represent about 12.41% of the sample, and empty nesters with a frequency of 56 make up about 14.90%. The distribution of the categories is somewhat shifted, and couples with young and teenage children markedly dominate. Table 7 organizes information about nominal measures of households represented as dummy variables. Gender stereotypes are mostly supported with men, but are high for both genders by all standards. Whilst 27.36% females tilt toward the traditionalist view on the role of women, these views are acknowledged by 36.34% men.

Results and Discussion

Prior to presenting the main results, Table 2 displays the average weekly involvement of male and female partners in paid employment and the three categories of unpaid household tasks. Means and standard deviations in parentheses are organized for the five categories of life cycle. Statistically significant differences are communicated by boldface that is used at the gender with a higher mean value (see the notes to Table 2 for details). The statistics reported in Table 2 give a picture of factual time use by either partner in different activities without a contextual confrontation with broader explanatory factors. In other

Table 2 Average weekly time use across different life cycle categories

| Life cycle category | Average hours spent per week | | | | | | | |
|--------------------------------|------------------------------|------------------|-------------------|-------------------------|-------------------------|-----------------|------------------|-------------------------|
| | Paid work | | Routine housework | | Non-routine housework | | Care work | |
| | Male | Female | Male | Female | Male | Female | Male | Female |
| Childless couples | 40.47 (16.65) | 33.34 (15.12) | 6.69 (5.59) | 16.43 (8.60) | 7.89 (5.58) | 7.13 (3.94) | 1.10 (4.70) | 2.99 (16.27) |
| Couples with youngest children | 39.46 (15.30) | 8.99 (15.19) | 6.11 (6.15) | 24.75 (12.35) | 9.82 (7.94) | 7.13 (3.98) | 18.71 (15.72) | 51.86 (35.14) |
| Couples with young children | 47.29 (11.31) | 35.16 (13.99) | 5.35 (4.31) | 24.08 (11.33) | 11.00 (11.51) | 9.34 (7.12) | 13.29 (17.09) | 27.51 (24.22) |
| Couples with teenage children | 44.15 (15.30) | 36.06 (15.19) | 5.74 (6.15) | 21.69 (12.35) | 13.33 (7.94) | 10.19 (3.98) | 2.58 (15.72) | 4.40 (35.14) |
| Empty nest couples | 24.83 (23.17) | 24.20 (19.83) | 6.24 (5.26) | 22.46 (12.36) | 11.86 (10.12) | 10.22 (7.78) | 3.12 (4.76) | 4.78 (7.96) |

Numbers in parentheses are standard errors. Boldface at means signals that there is a significant difference between male and female partners detected by the Wilcoxon signed-rank test (at a 0.05 level of significance), and it is used at the larger of the statistically different values. Both means and standard deviations are computed with probability weights applied to individual observations to correct for possible imbalances in the sample. In consequence, the computed values can be interpreted as estimates related to the population of heterosexual couples in Slovakia

words, they only describe the absolute temporal involvement of the partners in diverse activities without pointing out why, which will be of interest later and studied in a regression fashion.

Time Spent in Paid Occupation

One of the notable patterns unveiled in Table 2 in relation to time spent in paid work is that males and females engage in paid and household tasks differently in most life stages, whilst the only exception to this rule are empty nesters.

In all life phases, the male partner spends on average more time in paid work than the female partner does, which is a finding that emerges chronically in other countries. The difference between the genders is largest for couples with the youngest children, where the average time spent by wife on paid work rapidly decreases. That said, the withdrawal of the female partner from employment is compensated by her commitment to care work as is discernible from the second and last column of Table 2. Whilst with a very small child the woman spends at paid work average 30.47 h per week less than the man, all this saving (and more) she invests in care work and her average time spend on care work is 33.15 h per week greater than that of the man. This is not surprising since in Slovakia a wife can stay at home up to 3 years after the birth of her child (6 months on maternity leave and the rest on parental leave).

Further, the time the male partner spends in paid occupation culminates with young and teenage children. The regulated working time (without overtime) is 40 h per week at most; yet, the average time spent by male partners at paid

labor is 47.29 h and 44.15 h per week according as the children are young (between 6 and 15 years of age) or teenage (16 to 25 years of age at most). Hence, either they work overtime, or they have multiple jobs. Finally, females too are comparatively most immersed in paid activities in the life phases when the family has young and teenage children. Given the propensity of Slovak women to participate in the labor market, the return of the female partner to the workplace cannot be attributed to an effort to save the career that could be possibly harmed on account of her withdrawal from the labor market (Hideg et al., 2018), but by the necessity to alleviate the pressures on the household budget caused by the presence of children. The woman's reentry to the labor market is associated with a massive redistribution of time spent on care work towards time spent in paid work as is again signaled by the second and last column of Table 2. This shock in the organization of the household requires an adjustment by both partners, and is identifiable thanks to the adopted life cycle considerations.

The detected patterns follow from the fact that the dual-earner model is typical of Slovak families, and it is rather an exception than the rule when a woman works part-time. Official statistics corroborate that female part-time employment in Slovakia is comparatively on very low levels (OECD, 2020, Statistical Annex, Table H). In the case of couples with young and teenage children, the woman spends on average even more time in paid work than the woman in young childless couples does. The observed heightened involvement of both partners in paid work is obviously a consequence of the fact that having children is costly and that both partners have to cope in order to sustain the household budget.

Time Spent on Routine Housework

A first observation that concerns time allocation to routine housework is that males and females engage in routine activities differently in all life stages. Males devote far fewer hours to their execution than females do. Average time engagement of females in routine tasks is 9.74 to 18.73 h per week higher than that of males. That said, average time that women devote to routine housework increases with the arrival of children, and varies over the life cycle. Understandably, routine tasks occupy the woman least in the childless stage, and her absolute time involvement in routine chores intensifies with small children, but somewhat declines when children become teenagers or the household goes into the empty nest stage. In contrast, the average time the man spends on routine housework does not change significantly across different life phases. In childless couples, an average woman is involved in routine tasks 2.45 times more than an average man, in couples with the youngest children it is 4.50 times more, and in empty nest couples 3.60 times more. Certainly, this inverted U pattern is much due to different views held by the generations (the post-war baby boom generation typically empty nesters, whilst Generation Y typically childless), but is also in line with the findings that females have a tendency of becoming wrapped in household duties during marriage (Grunow et al., 2012).

Time Spent on Non-routine Housework

Albeit men are somewhat left out from routine chores, they compensate this omission by performing non-routine activities in all life phases, even if their compensation does not suffice to make the distribution between the genders fair in terms of total time use. As follows from the third and fourth column of Table 2, an average male is involved weekly in non-routine tasks more by 0.76 h (childless couples) to 3.14 h (couples with teenage children) in comparison to an average female. This is in accordance with the notion that occasional tasks, such as small repairs or outdoor projects, are done predominantly by men (e.g. Blair & Lichter, 1991; Kan et al., 2011). The pattern is comparable to that of routine tasks. With no child in the family, the involvement of both genders is more balanced, but the imbalance grows with the existence of children, and diminishes as children come of age. Sociological studies reveal that unpaid household labor in Slovak families has features of an educational model (Kika & Martinkovičová, 2015). It is merely obvious that mothers teach children primarily routine activities, whereas fathers' guidance is more towards non-routine tasks.

Non-routine housework is actively performed also by empty nesters who are more engaged in non-routine activities than childless couples. This is obviously associated with the fact that some people, not necessarily of an older age, perform a variety of intermittent tasks as their hobbies. Especially people of retirement age have an abundance of time for such pastimes. The underdeveloped service sector supplying small repairs for households during the Socialist era in Slovakia taught many people to make minor repairs on their own. Actually, the older generation of either gender in Slovakia is very proficient in household repairs, reconstructions, gardening and other suchlike activities.

Confronting the average time spent by males and female on routine and non-routine tasks, there seems to be some bargaining mechanism between the male and female partner that unloads the female partner when she is heavily immersed in routine chores.

Time Spent on Care Work

Also in the case of care work, the greatest workload applies to women. In absolute terms, these invest most time into care work when the children are small (youngest or young), which is on average 33.15 h and 14.22 h per week more than men do. Nonetheless, their care activity relative to men rises over the life cycle as women in childless couples and couples with the youngest children put into care 1.58 and 1.56 times more time more than men do. This ratio increases until 2.88 times in empty nest couples. Care work dominates in the time budget of households especially with the youngest children up to 6 years of age (average 70.57 h per week) and with young children between 6 and 15 years of age (average 40.80 h per week). Needless to say that in these life stages care work reduces chiefly to child care. In such a case, Slovak men appear more involved in childcare duties than is consistently discovered for Australian or American men who spend with children twice or thrice less time (Craig, 2006, p. 261; Miller & Bowd, 2014, p. 128). The uneven involvement of both partners in childcare becomes less sizeable with small children up to 15 years of age and this bears a distinct semblance of sharing childcare duties equally that transpires for Swedish couples after controlling for time spent at paid work (Evertsson, 2014).

It is noteworthy that even males in childless or empty nest couples are tasked with *care* responsibilities. Their engagement in care work suggests that at the former life stage the male partner assists his or his partner's parents, whilst at the latter life stage he either looks after his female partner or participates in supplementary grandchild care (Grünwald et al., 2022). The observed time use of both males and females in *care* activities in childless and empty nest couples

can be attributed to intergenerational help and care that is typical for European countries (Albertini, 2016; Brandt et al., 2009). The current societal model has been upheld in Slovak society over the past centuries and stresses the necessity to help and promote solidarity within the family. In this intergenerational model, children assist their parents once these retire, and grandparents pass a considerable portion of their free time with their grandchildren, which is not always in the form of assistance of child care. In addition, reasons are chiefly financial since the supply of professional care services is limited, and if available, these services are fairly expensive. Even these activities still burden primarily the female partner.

The high time allocations in favor of care work coincide with the opinion that the decision of parents to stay with children and care after them is a display of emotional attachment and is driven by psychological factors (Sayer, 2005, p. 297; Argyrous et al., 2017, p. 833). Irrespective of other factors, child care for mothers is both a must and a wish, and they are willing to sacrifice some of their leisure time (Craig, 2006). As noted in the preceding paragraph, a major aspect in such decisions is that kindergartens in Slovakia are of limited availability, and that informal daycare services are rather expensive and highly atypical of a mediocre household.

Factors of the Size of Routine and Non-routine Housework

The main results regarding the factors underpinning the time use on domestic tasks and its division between the genders come from fitting the three SURE models formulated in a least squares framework (estimated by EGLS after winsorization) and a tobit framework (estimated by ML without winsorization). Yet, in order to conserve space, only the results for the least squares approach with winsorized time-use data are reported in the paper. To all intents and purposes, in most respects there is no qualitative difference between the results derived from these two alternative specifications, which signals robustness of the findings. Whereas the only qualitative difference is highlighted and discussed, the results of the tobit specification are available upon request. The modeling strategy proceeded from general to specific. First, full models with all predictors were fitted, and then predictors insignificant at a 0.10 level were systematically step-wise removed. Concerning the interpretation, the results are actually confronted against the conventional level of significance set at 0.05, but the 0.10 level is employed in the selection of regressors to allow for a reasonable margin of uncertainty. The deletion of insignificant predictors is expected to improve the precision of estimated regression coefficients for predictors that really matter.

Tables 1 and 2 in the Supplementary Online Appendix report the estimated SURE models for the least squares formulation with the full set of predictors. In contrast, the models reported in Tables 3 and 4 are those that arose by dropping insignificant predictors. The former in these pairs of tables exhibit results for households (total time use and relative gendered division), whilst the latter tables exhibit results for male and female partners (total time use). Tags [LC], [TA], [RR] and [GI] are used to pinpoint the “key” regressors associated with life stages and the three normative theories of the gendered division of labor.

Furthermore, in order to ascertain whether the effect of life cycle varies with life stages, Tables 1 and 2 in the Supplementary Online Appendix also state p-values of the Wald test that coefficients at life cycle categories in individual equations are equal (the null hypothesis). The residual correlation section reports the correlation structure that is found between individual equations, and in each case the Breusch-Pagan or the likelihood ratio test of uncorrelatedness (the null hypothesis) reveals significant cross-equation correlations. All correlation coefficients are positive, which signifies that a household and its members are inclined either to be active in different categories of household labor or to abstain from such activities. In other words, Slovak households either tend to perform domestic chores of no actual competition between different categories of housework as regards time use. Slovak households are especially prone to carry out comparable high or small extents of routine and non-routine tasks (correlation coefficient 0.548 in Table 1 in the Supplementary Online Appendix) and the same tendency applies for the male and female partner with the same activity (correlation coefficients between 0.400 and 0.692 in Table 2 in the Supplementary Online Appendix). As follows from the reported R-squared values, the equations estimated for care work are comparatively more successful in terms of their explanatory power. Hence, for routine and non-routine housework there are other decisive driving forces than those preordained by life cycle or the three leading sociological hypotheses. That said, in most cases life cycle is a factor that affects household decisions regarding housework. All the different kinds at a time, or they simply prefer other ways of spending their time and there is tables report the number of observations that were available for estimation as well as the number of zero observations (with the models considered in a least squares framework those before winsorization).

The regression models fitted for all household members (i.e. not only the male or female partner) indicate that the time given to *routine* and *non-routine* domestic tasks is not constant across different life stages. Hence, life cycle does affect how much time a Slovak household in total spends on these two categories of housework activities. This is reflected in the significance of life cycle categories displayed in the first two columns of Table 3 or in the p-values of the

Table 3 Regression results by households with only significant predictors (least squares regressions, winsorized)

| Predictors | Hours spent per week by household on household tasks | | | Ratio of female's and male's share on household tasks | | |
|---|--|-----------------------------|-----------------------------|---|----------------------------|----------------------------|
| | Routine housework | Non-routine housework | Care work | Routine housework | Non-routine housework | Care work |
| Life cycle predictors with the intercept referencing childless couples and/or other categories | | | | | | |
| Constant | 12.125** (2.662) | 6.399* (2.891) | 7.488*** (2.179) | 3.557 (4.088) | 1.010* (0.511) | 1.585*** (0.648) |
| [LC ^D] Couple with youngest children | | | 59.695*** (4.989) | | | 1.906** (0.724) |
| [LC ^D] Couple with young children | | | 32.393*** (3.438) | | | 1.286** (0.542) |
| [LC ^D] Couple with teenage children | 6.013** (2.122) | 10.743*** (2.303) | | | | |
| [LC ^D] Empty nest couple | | | | | | |
| Other main sociological predictors and socio-economic controls | | | | | | |
| [TA] Relative time in paid work | | | 12.219** (4.024) | | | |
| [RR] Income dependence | 7.804** (2.591) | | | 17.128* (7.894) | | |
| [RR] Female more educated | | | | | | |
| [RR] Male more educated | 6.153** (2.255) | 7.206** (2.469) | | 12.966* (5.814) | | |
| [GI] Female's views on gender roles | | | 6.592* (3.830) | | | 0.872* (0.387) |
| [GI] Male's views on gender roles | | | – 8.340** (3.551) | | | – 1.742** (0.574) |
| Household size | 4.291*** (0.764) | 2.428** (0.811) | | | | |
| <i>Living in marriage</i> | | | | | | |
| Living in a house | 4.527* (1.778) | 10.113*** (1.959) | | 9.948* (4.663) | | 1.221* (0.559) |
| Both non-working | 8.545* (4.046) | | | | 8.641*** (1.010) | |
| <i>Municipality size</i> | | | | | | |
| R-squared | 0.234 | 0.230 | 0.441 | 0.051 | 0.037 | 0.187 |
| # observations | 383 | 383 | 383 | 298 | 298 | 298 |
| # original zero values | 0 | 0 | 83 | 0 | 0 | 2 |
| F test p-value | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.000 |

Reported models are estimated in a usual fashion by iterated EGLS until declared convergence. Probability weights are applied to individual observations to correct for possible imbalances in the sample. Figures in parentheses are standard errors associated with coefficient estimates. Reported counts of zero values are before the winsorization. These models arose from full models with all predictors considered by deleting predictors that are insignificant at a 0.10 level of significance (save the intercept). Models are considered with intercepts representing childless couples and other life cycle categories that are absent amongst those labeled as [LC^D]. Correlations between the errors of equations in the system are unreported since they do not depart much from those in the full models. Coefficients significant at a level of 0.05 are indicated by boldface. Significance labels follow this notational norm: *** p-value \leq 0.001, ** p-value \leq 0.01, * p-value \leq 0.05, • p-value \leq 0.10

Wald test lower than 0.05 reported in the first two columns of Table 1 in the Supplementary Online Appendix. That said, only a few life cycle categories are typically significant, so the life course is only a partial explanatory factor. An opposite pattern is detected for time allocations by the male and female partner to *routine* and *non-routine* chores as seen in the significant life cycle categories in the first four columns of Table 4 and the p-values of the Wald test displayed in the

first four columns of Table 2 in the Supplementary Online Appendix. Time use for *routine* and *non-routine* chores by either partner does not vary across the life course except for the involvement of the female partner in *routine* tasks that is significantly different in most life stages.

Hence, the male partner in all life stages allocates to *routine* activities roughly the same amount of time, whereas the burden of the female partner changes and intensifies with

Table 4 Regression results by male and female household members with only significant predictors (least squares regressions, winsorized)

| Predictors | Hours spent per week on household tasks | | | | | |
|---|---|---|--|--|---|---|
| | Routine housework | | Non-routine housework | | Care work | |
| | Male | Female | Male | Female | Male | Female |
| Life cycle predictors with the intercept referencing childless couples and/or other categories | | | | | | |
| Constant | 9.954 ^{***} (0.925) | 15.053 ^{***} (1.420) | 8.831 ^{***} (0.732) | 7.305 ^{***} (0.475) | 2.365 ^{**} (0.770) | 6.818 ^{**} (2.442) |
| [LC] Couple with youngest children | | 5.379 ^{**} (1.840) | | | 17.402 ^{***} (1.657) | 41.289 ^{***} (3.165) |
| [LC] Couple with young children | | 6.194 ^{***} (1.622) | | | 10.666 ^{***} (1.354) | 22.862 ^{***} (2.355) |
| [LC] Couple with teenage children | | 2.871 [•] (1.603) | | | | |
| [LC] Empty nest couple | | 5.366 ^{**} (1.887) | | | | |
| Other main sociological predictors and socio-economic controls | | | | | | |
| [TA] Relative time in paid work | | | – 1.531 [•] (0.844) | | | 12.890 ^{***} (2.129) |
| [RR] Income dependence | – 2.455 ^{**} (0.844) | 9.211 ^{***} (1.797) | | | | |
| [RR] Female more educated | | | | | | |
| [RR] Male more educated | | 3.760 [*] (1.286) | | 1.875 ^{**} (0.622) | | |
| [GI] Female's views on gender roles | | 2.091 [•] (1.096) | | | | 5.996 ^{**} (1.951) |
| [GI] Male's views on gender roles | | | | | | – 4.231 [*] (1.809) |
| Household size | – 0.679 ^{**} (0.209) | | | | | – 1.050 [•] (0.577) |
| Living in marriage | – 1.309 [•] (0.780) | | | | | |
| Living in a house | | | 4.990 ^{***} (0.915) | 2.344 ^{***} (0.595) | | |
| <i>Both non-working</i> | | | | | | |
| <i>Municipality size</i> | | | | | | |
| R-squared | 0.055 | 0.125 | 0.067 | 0.050 | 0.270 | 0.489 |
| # observations | 365 | 365 | 365 | 365 | 365 | 365 |
| # original zero values | 22 | 0 | 2 | 0 | 105 | 81 |
| F test p-value | 0.036 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

Reported models are estimated in a usual fashion by iterated EGLS until declared convergence. Probability weights are applied to individual observations to correct for possible imbalances in the sample. Figures in parentheses are standard errors associated with coefficient estimates. Reported counts of zero values are before the winsorization. These models arose from full models with all predictors considered by deleting predictors that are insignificant at a 0.10 level of significance (save the intercept). Models are considered with intercepts representing childless couples and other life cycle categories that are absent amongst those labeled as [LC^D]. Correlations between the errors of equations in the system are unreported since they do not depart much from those in the full models. Coefficients significant at a level of 0.05 are indicated by boldface. Significance labels follow this notational norm: ***p-value ≤ 0.001, **p-value ≤ 0.01, *p-value ≤ 0.05, •p-value ≤ 0.10

very small or young children. With teenage children this pattern breaks and the female partner is unloaded although the household as a whole is more absorbed in *routine* tasks in this particular life stage. Likewise, the involvement of both genders in *non-routine* tasks seems constant across the life course, even though couples with teenage children are more intensely occupied with this kind of housework. A possible explanation is offered by the life course itself. As children

are small and learn life skills, they are likely to do little housework, especially independently (Bonke, 2010). On the one hand, they multiply the volume of domestic work to be performed. On the one hand, as they grow, they develop their abilities and skills, and are able to do more different things until they become completely independent from their parents (Craig et al., 2015). Therefore, they can help their parents, especially their mother, with housework, which reduces the

time their parents have to spend in time-consuming housework. Previous research in Slovakia supports this reasoning (Považanová et al., 2019), and also studies for other countries tally with this interpretation (e.g. Schulz, 2020).

The amount of time that a household on average allocates to *routine* and *non-routine tasks* is only comparatively higher when there are teenage children, but in other life stages total average time use on these two categories of domestic chores is altogether similar. Apart from the life course, total time allocation for both *routine* and *non-routine* housework in Slovak households is explained by a comparatively better education of the male partner, and for *routine* housework also by relative economic dependence of the female partner. Whenever the male partner is more educated, the household apportions more time to both routine chores and non-routine activities. Likewise, whenever the female partner earns lower income relative to the male partner, the household devotes more time to routine tasks. Both these metrics point to the relevance of the relative resources perspective. Apparently, the male partner that prevails over the female partner in educational attainment or earns comparatively higher income garners more negotiating power within a household, and seems in a position to demand more *routine* and *non-routine* chores to be done, perhaps in desire of greater comfort as well as a snuggler and more organized home. Yet, the results for time allocation of both partners indicate that all onus falls upon the shoulders of the female partner as with higher relative income the male spends less and the female considerably more in *routine* activities, and when the male partner has a higher level of education this only burdens the female partner and increases her time allocation to both *routine* and *non-routine* tasks. This also implies that in households where the female has a disbenefit of lower resources as opposed to the male, she is unable to outsource this kind of activities. This regularity agrees with findings of others (e.g. Killewald & Gough, 2010; Sullivan & Gershuny, 2013). The coefficients -2.455 and $+9.211$ (in Table 4) for males and females, respectively, show that the propensity of females to do *routine* housework is higher than the propensity of males not to engage in *routine* chores. These results are in accordance with Evertsson and Neramo (2004) or Lewin-Epstein et al. (2006). Interestingly, time availability and gender ideology do not prove convincingly useful in explaining the extent of routine and non-routine activities performed by a household or either partner.

Amongst other predictors of time use in *routine* and *non-routine* tasks, with some degree of variation, belong also household size, life in a house or the non-working status of both partners. Unsurprisingly, larger households or couples living in a house have a tendency to spend more on both *routine* and *non-routine* tasks, but this burdens either partner or other household members unevenly. In larger households the male partner avoids some portion of *routine* tasks and

delegates them to household members other than the female partner, whilst in households living in a house the involvement of both partners in *non-routine* tasks is increased, if that of the male partner is more intensive.

Factors of the Size of Care Work

Irrespective of the modeling strategy, the time spent on *care* work varies across the life course as is attested by the significant life stage categories in the third column of Table 3 as well as by the almost zero p-values of the Wald test displayed in the last two columns of Table 2 in the Supplementary Online Appendix. Hence, the volume of *care* work in absolute terms adjusts for the household as well as for both partners, and significantly differs when couples have very small or young children. Since *care work* in these life stages de facto entails child care, it is no surprise that in these two life stages *care* work necessitates the greatest allocation of time from all household members, but with teenage children this time consumption returns to normal. The burden of the female is about twofold or even greater in comparison to that of the male partner in each life stage. For instance, very small children make females spend on *care* activities an additional 41.289 h on average, whereas males in such cases are only burdened merely by an additional 17.402 h on average (according to the estimates in Table 4).

Apart from the life course, the extent of *care* work by all household members as well as by the female partner alone is governed by relative time spent in paid employment and by gender stereotypic views that both partners entertain. All else equal, the less the female partner spends in paid employment, the more is she available for *care* work at home. Likewise, if she embraces traditionalist attitudes, she tends to spend more time on *care* tasks. On the contrary, gender role views of her partner contradict predictions of the gender ideology perspective and are somewhat controversial. As regards the male partner himself, his engagement in *care* work is only affected by the life course, and is not explained by any hypothesis on sharing household labor. The observed intense involvement of the female partner in *caregiving* within the household is not surprising since it may be motivated by familistic attitudes or invoked by a sense of a social or intergenerational obligation that is felt in Slovakia. Her choice to adopt and accept the caregiver role may also be driven by her biological essentialist beliefs that were not monitored in the study and are crucial to the decisions in her parenting arrangements (Pinho & Gaunt, 2021). In such a case, non-egalitarian attitudes of the male partner do not matter. Furthermore, these findings are consistent with the recent observation that gender ideology is difficult to assert when confronted with a weaker bargaining position dictated by limited relative resources, be it those of the male

or female partner (Carriero & Todesco, 2018). Egalitarian gender beliefs may be then difficult to translate into actual behavior. Finally, despite the allusions made in the preceding text, *care* work in this study is not restricted to child care and the model of intergenerational support prevalent in Slovakia, possibly combined with essentialist attitudes, necessarily incites in women a responsibility for others.

All in all, it transpires that the life course is universally the most notable factor of time spent on *care* work not only for the household as a whole, but also for the male and female partners themselves. Both partners adjust their usage of time in *care* work according to the life cycle of the household since they are both busiest with *caregiving* with very small or young children.¹

As a final point, some patterns that have been established in time-use research are not observed for Slovak households. For instance, there is international evidence that higher-educated parents spend more time with their children (Guryan et al., 2008), which might be assumed to work similarly for other variations of care work, if with less uniformity (Budlender, 2010). In this analysis, the role of education is not found of relevance as neither partner increases (or anyhow adjusts) their time allocation to care work due to a higher level of education, all else equal.

Factors of the Gendered Division of Routine, Non-Routine Housework, and Care Work

Concerning the relative allocation of domestic tasks within a Slovak household between the genders, only the division of *care* work can be reliably considered affected by the life course as is attested by the (in)significant life course variables in the last three columns of Table 3, and by the p-values of the Wald test in the last three columns of Table 1 in the Supplementary Online Appendix. These results indicate that the female is excessively burdened with *caregiving* relative to the male with very small or young children.²

¹ In contrast with the results of least squares specification, here the results of the alternative multivariate tobit regression indicate that also in empty nest households the male partner is significantly more occupied with care tasks than the female partner whose activity remains in the extent of the childless stage, all else being equal.

² That said, here is some ambiguity in the sense that the alternative specification in a multivariate tobit framework suggests that the life course may also feature in the distribution of *routine* tasks in couples with very small children (to the relief of the female that is unloaded by the male partner), and in the distribution of *non-routine* tasks in couples with young children (to the disadvantage of the female whose workload increases). The decreased burden of *routine* chores when the family has a child less than six years of age may signal that the couple enlisted the help of grandparents under the intergenerational exchange. The depicted patterns indicate that parenthood does reinforce a non-egalitarian division of household labor (Dribe & Stanfors, 2009).

The division of *routine work* between the female and male partner is explained primarily by constructs of the relative resources theory, be it the income-based or education based variants. When the male partner enjoys a more favorable status, being more decisive provider of the household's income or with better education, the female partner spends on chores more time relative to the male partner. These findings agree with those by Lewin-Epstein et al. (2006). However, the other two theories, time availability and gender stereotypic views, are not supported by either regression approach.

Concerning *non-routine* housework, as a matter of fact, amongst the constructs under consideration, it is only life cycle that gains limited support, whereas time availability, relative resources and gender ideology are all found insignificant. These results show that male and female involvement in *non-routine* tasks in a Slovak household is not in step with predictions of the time availability, relative resources and gender ideology theories, but is determined by other factors.

Finally, the sharing of *care* work between the partners seems best explained, similarly to *non-routine* housework, by the life cycle perspective as the female partner is occupied immensely with *caregiving* when the children are small or young, and her workload lightens when the children turn teenagers. Still, it remains higher than that of the male partner. In a manner similar to the patterns established for the gendered division of *non-routine* chores, the traditional theories appear to have no or a limited bearing on the time allocated by either partner to care activities except the gender ideology perspective. Whenever the female partner tilts towards the traditionalistic interpretation of male and female roles, she is willing to raise her contribution to *caregiving* tasks relative to the male partner. In contrast with the factors underlying the absolute extent of *care* work, the explanatory role of the time availability metric is suppressed when the center of attention is the division of duties between the genders.

Conclusion

The present paper sought factors that govern the extent of household labor in Slovak households and its division between male and female heterosexual partners, using a unique data set for 2018. Empirical single-country studies of this sort for post-Socialistic countries accessible to an international reader are extremely scarce or almost absent in research of household labor owing to the lack of data. Specifically for Slovakia, sociological studies on household research are mostly available in the national language and often take form of a discourse highlighting general trends without offering deeper insights. Needless to say, this pattern is also characteristic of other post-Socialistic countries. Furthermore, the interest in Slovakia as a

post-Socialist country adds to international sociological research since Slovakia is marked by pro-occupational behavior and attitudes of the female population that differ from those that characterize the typical mindset of a Western woman. In consequence, the bargaining processes that unfold within a household and enjoy huge attention in sociological research are limited in scope to domestic chores. Furthermore, a painful transformation in the 1990s to a market economy affected households and the way they manage their time. Whereas the older generation was raised in a gentle pace of life typical of the Socialist era, younger generations are fully accustomed to hectic market conditions of the present life. These differences are embedded in the age of household members and are absorbed by what is here called the life course. The adopted life course classification cuts household life into five categories based on the presence of children and their age as well as on the age of the woman, and ranges from childless couples to empty nesters. This categorization reflects the notion that a child in the family alters *modus vivendi* and forces the household to reassess its time budget. As another contribution, the paper blends the life course with three traditional theories of the gendered division of household labor. All these are jointly employed to explain the amount of time spent by Slovak households on domestic routine, non-routine and care tasks and the allocation of household time between male and female partners.

In terms of hours spent on housework, the present results are not altogether different from the stylized findings that have continued to surface in literature for Western countries for the past few decades. In Slovak couples, non-routine tasks are in the sphere of men, whereas routine tasks and care work are firmly in the hands of women. The non-egalitarian patterns remain consistent through life cycle, and only with children grown-up and moved-out, involvement in paid and care work becomes fairly balanced. The survey revealed that Slovak men spend in paid occupations much more time than Slovak women do, and this culminates with young and teenage children. In such couples, men work overtime or have other jobs, and both partners are more detained in paid work than in other life stages. This is a most natural response to increased household expenses incurred by the presence of children. Women are more occupied with routine tasks than men, and non-routine tasks are the domain of men. An average woman allocates to routine chores 9.74 to 18.73 h per week (2.45 to 4.50 times) more time than an average man, whereas an average man spends on non-routine tasks 0.75 to 3.14 h per week (1.11 to 1.38 times) more time than

an average woman. Women invest comparatively more time also into care work and this is on average 14.22 and 33.15 h per week (1.56 to 1.93 times) more than men in couples with children 15 years of age at most.

Intensive sociologic explorations into the gendering of duties in Slovak couples were spurred by extensive shifts in family behavior observed with, and caused by, the societal and economic transformation in the 1990s (Džambazovič, 2015). Although the model of a more active engagement of women in household duties was found deeply rooted in Slovak households, there were also some signs that heralded more egalitarian attitudes towards sharing and overlapping of housework duties (Chorvát, 2004; Ondrejkoš & Majerčíková, 2006). Nonetheless, these prospects obviously did not materialize a decade later as admitted by Chorvát (2015) or as transpired in this study.

The paper further contributes to the literature by modeling the simultaneity in time allocations for different categories of housework and between both genders, and bases its analytical framework on the SURE model. The fitted regressions display worse goodness-of-fit for routine and non-routine tasks, which suggests that perhaps these categories of housework are shaped by other factors than those preordained by the three principal theories. A common and almost universal determinant is the life course that makes Slovak households and their members increase time allocation to different categories of housework in life stages marked by a presence of children. Slovak households devote more time to routine and non-routine tasks when children are in teenage years, but they are excessively busy with care work when children are very small or young. On the one hand, it is chiefly the woman that is compelled to increase their time use in routine tasks and caregiving in different life stages as the man adjusts his involvement only in the sphere of care work. On the other hand, there is evidence of the intergenerational exchange that emerges thrice: childless couples look after their parents, teenage children are invited into domestic chores, and empty nest couples in senior age are active in grandparenting.

The three categories of household labor are obviously driven by different factors that explain both absolute time use and its relative division between the partners. The relative resources theory seems an apt explanation for routine housework as income dependence and comparatively higher education are found recurring predictors for this housework category, which specifically burdens the woman or other household members, and not the man. Higher educational attainment of the male partner also explains time use and gendered division in non-routine housework. In this case, however, income dependence plays no role. Gender role

views are found relevant for care work, although the results are somewhat mixed. That said, consistent with the theory, time constraints on the part of the woman explain the amount of time she and all household members spend at care duties. The detected patterns indicate that in Slovak couples the stance of the woman in care work is molded by her familistic attitudes and her sense of responsibility towards the family, possibly as a consequence of the intergenerational model prevalent in Slovakia.

In conclusion, the findings are consistent with the notion of egalitarian familism recently ascribed to post-Socialist Central European societies (Knight & Brinton, 2017; Hamplová et al., 2019), in which the woman balances between an active and independent role on the labor market and materializes her identity in familial life. This combination of gender essentialist and non-essentialist attitudes naturally entails

that predictions of the gender ideology hypothesis are not realized and gives room to other theories. Whilst the analysis confirms a role of life stages in explorations of the division of household labor, many related questions remain unanswered. For example, it is not clear whether younger men and women are adapting to a balanced division of housework by overcoming stereotypes imputed by gender, or whether parenthood strengthens the traditional unbalanced division of household tasks.

Appendix

See Tables 5, 6 and 7.

Table 5 Descriptives of cardinal variables in the sample (not corrected for weights)

| Variable | Mean | Standard deviation | Median | Minimum | Maximum |
|---|--------|--------------------|--------|---------|---------|
| Hours spent per week by household on routine housework | 32.730 | 17.181 | 30.000 | 6.000 | 117.000 |
| Hours spent per week by household on non-routine housework | 23.571 | 19.307 | 18.250 | 1.833 | 205.000 |
| Hours spent per week by household on care work | 27.688 | 39.092 | 11.000 | 0.000 | 224.000 |
| Hours spent per week by males on routine housework | 6.183 | 5.542 | 4.750 | 0.000 | 37.000 |
| Hours spent per week by females on routine housework | 21.501 | 10.608 | 20.000 | 4.000 | 65.000 |
| Hours spent per week by males on non-routine housework | 11.010 | 10.159 | 8.250 | 0.000 | 116.000 |
| Hours spent per week by females on non-routine housework | 8.808 | 6.276 | 7.000 | 1.000 | 52.000 |
| Hours spent per week by males on care work | 8.479 | 14.127 | 3.000 | 0.000 | 112.000 |
| Hours spent per week by females on care work | 18.714 | 27.761 | 6.000 | 0.000 | 150.000 |
| Ratio of female's and male's share on routine housework | 0.784 | 0.135 | 0.800 | 0.290 | 1.000 |
| Ratio of female's and male's share on non-routine housework | 0.471 | 0.142 | 0.470 | 0.070 | 1.000 |
| Ratio of female's and male's share on care work | 0.676 | 0.181 | 0.670 | 0.000 | 1.000 |
| Relative time in paid work | 0.173 | 0.419 | 0.048 | - 1.000 | 1.000 |
| Income dependence | 0.216 | 0.281 | 0.154 | - 1.000 | 1.000 |
| Household size (# members) | 3.325 | 1.032 | 3.000 | 2.000 | 7.000 |
| Municipality size (thousands of people) | 64.333 | 117.661 | 13.289 | 0.104 | 426.927 |
| Sampling weights | 1.116 | 1.035 | 0.920 | 0.410 | 13.840 |

Numbers are computed with the use of all observations available

Table 6 Life cycle categories in the sample (not corrected for weights)

| Life cycle category | Childless couple | Couple with youngest children | Couple with young children | Couple with teenage children | Empty nest couple |
|----------------------|------------------|-------------------------------|----------------------------|------------------------------|-------------------|
| Number of households | 50 | 68 | 115 | 114 | 56 |

Table 7 Descriptives of other nominal variables in the sample (not corrected for weights)

| Nominal variable | Number of households with a “no” (zero) value | Number of households with a “yes” (unity) value |
|---|---|---|
| Female more educated | 291 | 111 |
| Male more educated | 333 | 69 |
| Female’s views on gender roles (stereotype = “yes”) | 292 | 110 |
| Male’s views on gender roles (stereotype = “yes”) | 254 | 145 |
| Living in a house | 180 | 223 |
| Living in marriage | 50 | 352 |
| Both non-working | 382 | 20 |

Numbers are computed with the use of all observations available

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Data Availability The data upon which this study draws are available from the corresponding author upon reasonable request, and so are the R and Stata codes.

Declarations

Conflict of interest The authors have no conflict of interest to declare.

Ethical Approval The authors acknowledge that the research complies with the ethical standards as laid down in the 1964 Declaration of Helsinki and its later amendments and other comparable ethical standards.

Consent to Participate Informed consent was obtained from all respondents participating in the questionnaire survey by which the data were collected.

Consent for Publication Participation in the study was conscious and voluntary with a full understanding of later publication for research purposes.

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References

- Aassve, A., Fuochi, G., & Mencarini, L. (2014). Desperate housework: Relative resources, time availability, economic dependency, and gender ideology across Europe. *Journal of Family Issues*, 35(8), 1000–1022. <https://doi.org/10.1177/0192513X14522248>
- Albertini, M. (2016). *Ageing and family solidarity in Europe: Patterns and driving factors of intergenerational support*. (World Bank Policy Research Working Paper 7678). <https://doi.org/10.13140/rg.2.1.1967.4488>
- Albertini, M., & Tosi, M. (2022). Grandparents, family solidarity and the division of housework: Evidence from the Italian case. *Genus*, 78, 21. <https://doi.org/10.1186/s41118-022-00168-4>
- Alvarez, B., & Miles, D. (2003). Gender effect on housework allocation: Evidence from Spanish two-earner couples. *Journal of Population Economics*, 16(2), 227–242. <https://doi.org/10.1007/s001480200126>
- Amemiya, T. (1974). Multivariate regression and simultaneous equation models when the dependent variables are truncated normal. *Econometrica*, 42(6), 999–1012. <https://doi.org/10.2307/1914214>
- Anxo, D., Mencarini, L., Pailhé, A., Solaz, A., Tanturri, M. L., & Flood, L. (2011). Gender differences in time use over the life course in France, Italy, Sweden, and the US. *Feminist Economics*, 17(3), 159–195. <https://doi.org/10.1080/13545701.2011.582822>
- Apps, P. F., & Rees, R. (2005). Gender, time use, and public policy over the life cycle. *Oxford Review of Economic Policy*, 21(3), 439–461. <https://doi.org/10.1093/oxrep/gri025>
- Argyrous, G., Craig, L., & Rahman, S. (2017). The effect of a first born child on work and childcare time allocation: Pre-post analysis of Australian couples. *Social Indicators Research*, 131, 831–851. <https://doi.org/10.1007/s11205-016-1278-5>
- Baxter, J., Haynes, M., Western, M., & Hewitt, B. (2013). Gender, justice and domestic work: Life course transitions and perceptions of fairness. *Longitudinal and Life Course Studies*, 4(1), 78–85. <https://doi.org/10.14301/lcs.v4i1.218>
- Baxter, J., & Hewitt, B. (2013). Negotiating domestic labor: Women’s earnings and housework time in Australia. *Feminist Economics*, 19(1), 29–53. <https://doi.org/10.1080/13545701.2012.744138>
- Baxter, J., Hewitt, B., & Haynes, M. (2008). Life course transitions and housework: Marriage, parenthood, and time on housework. *Journal of Marriage and Family*, 70(2), 259–272. <https://doi.org/10.1111/j.1741-3737.2008.00479.x>
- Bertrand, M., Kamenica, E., & Pan, J. (2015). Gender identity and relative income within households. *The Quarterly Journal of Economics*, 130(2), 571–614. <https://doi.org/10.1093/qje/qjv001>
- Bianchi, S. M., & Milkie, M. A. (2010). Work and family research in the first decade of the 21st century. *Journal of Marriage and*

- Family*, 72(3), 705–725. <https://doi.org/10.1111/j.1741-3737.2010.00726.x>
- Bianchi, S. M., Milkie, M. A., Sayer, L. C., & Robinson, J. P. (2000). Is anyone doing the housework? Trends in the gender division of household labor. *Social Forces*, 79(1), 191. <https://doi.org/10.2307/2675569>
- Blair, S. L., & Lichter, D. T. (1991). Measuring the division of household labor: Gender segregation of housework among American couples. *Journal of Family Issues*, 12(1), 91–113. <https://doi.org/10.1177/019251391012001007>
- Bloemen, H. G., Pasqua, S., & Stancanelli, E. G. F. (2010). An empirical analysis of the time allocation of Italian couples: Are they responsive? *Review of Economics of the Household*, 8(3), 345–369. <https://doi.org/10.1007/s11150-009-9083-4>
- Bonke, J. (2010). Children's housework—Are girls more active than boys? *International Journal of Time Use Research*, 7(1), 1–16. <https://doi.org/10.13085/eijtur.7.1.1-16>
- Brandt, M., Haberkern, K., & Szydlik, M. (2009). Intergenerational help and care in Europe. *European Sociological Review*, 25(5), 585–601. <https://doi.org/10.1093/esr/jcn076>
- Brines, J. (1994). Economic dependency, gender, and the division of labor at home. *American Journal of Sociology*, 100(3), 652–688. <https://doi.org/10.1086/230577>
- Budlender, D. (2010). What do time use studies tell us about unpaid care work? Evidence from seven countries. In D. Bundlender (Ed.), *Time use studies and unpaid care work* (pp. 1–45). Routledge. <https://doi.org/10.4324/9780203846148>
- Bühlmann, F., Elcheroth, G., & Tettamanti, M. (2010). The division of labour among European couples: The Effects of life course and welfare policy on value-practice configurations. *European Sociological Review*, 26(1), 49–66. <https://doi.org/10.1093/esr/jcp004>
- Carriero, R., & Todesco, L. (2018). Housework division and gender ideology: When do attitudes really matter? *Demographic Research*, 39, 1039–1064. <https://doi.org/10.4054/demres.2018.39.39>
- Chaloupková, J. (2005). Faktory ovlivňující dělbu domácí práce v českých domácnostech a hodnocení její spravedlnosti [Factors influencing the division of housework in Czech households and assessment of its equitability]. *Sociologický Časopis*, 41(1), 57–77. <https://doi.org/10.13060/00380288.2005.41.1.04>
- Chorvát, I. (2004). Zmena rodových rolí v mestskej rodine na Slovensku: Fikcia či skutočnosť? [Changes of gender roles in an urban family in Slovakia: Fiction or reality?]. *Studia Etnologické i Antropologické*, 8, 271–279.
- Chorvát, I. (2007). Family and women in Central and Eastern Europe: The significance of traditional roles after socialism. In B. Sanghera, S. Amsler, & T. Yarkova (Eds.), *Theorising social change in post-Soviet countries: Critical approaches* (pp. 217–236). Peter Lang.
- Chorvát, I. (2015). Ženy, muži a domáca práca na Slovensku: Pretrvávajúce vzory alebo perspektíva zmeny? [Women, men, and domestic labor in Slovakia: Persistent patterns or auguries of change?]. In I. Chorvát & R. Džambazovič (Eds.), *Rodina na Slovensku v teórii a vo výskume [Family in Slovakia in theory and in research]* (pp. 83–110). Stimul.
- Claeskens, G., & Hjort, N. L. (2009). Model selection and model averaging. *Cambridge University Press*. <https://doi.org/10.1017/CBO9780511790485>
- Coleman, M. T. (1988). The division of household labor: Suggestions for future empirical consideration and theoretical development. *Journal of Family Issues*, 9(1), 132–148. <https://doi.org/10.1177/019251388009001007>
- Coltrane, S. (2000). Research on household labor: Modeling and measuring the social embeddedness of routine family work. *Journal of Marriage and Family*, 62(4), 1208–1233. <https://doi.org/10.1111/j.1741-3737.2000.01208.x>
- Connelly, R., & Kimmel, J. (2015). Unpaid time use by gender and family structure. In E. Redmount (Ed.), *The economics of the family: How the household affects markets and economic growth* (Vol. 2, pp. 67–114). Praeger.
- Constitution of the Czechoslovak Republic, Constitutional Act of 9 May 1948, No. 150/1948 Coll. (1948). <https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/1948/150/>
- Coverman, S. (1985). Explaining husbands' participation in domestic labor. *The Sociological Quarterly*, 26(1), 81–97. <https://doi.org/10.1111/j.1533-8525.1985.tb00217.x>
- Craig, L. (2006). Does father care mean fathers share? A comparison of how mothers and fathers in intact families spend time with children. *Gender & Society*, 20(2), 259–281. <https://doi.org/10.1177/0891243205285212>
- Craig, L., & Mullan, K. (2010). Parenthood, gender and work-family time in the United States, Australia, Italy, France, and Denmark. *Journal of Marriage and Family*, 72(5), 1344–1361. <https://doi.org/10.1111/j.1741-3737.2010.00769.x>
- Craig, L., & Powell, A. (2018). Shares of housework between mothers, fathers and young people: Routine and non-routine housework, doing housework for oneself and others. *Social Indicators Research*, 136(1), 269–281. <https://doi.org/10.1007/s11205-016-1539-3>
- Craig, L., Powell, A., & Brown, J. E. (2015). Co-resident parents and young people aged 15–34: Who does what housework? *Social Indicators Research*, 121(2), 569–588. <https://doi.org/10.1007/s11205-014-0643-5>
- Davis, S. N., & Greenstein, T. N. (2004). Cross-national variations in the division of household labor. *Journal of Marriage and Family*, 66(5), 1260–1271. <https://doi.org/10.1111/j.0022-2445.2004.00091.x>
- Davis, S. N., Greenstein, T. N., & Gerteisen Marks, J. P. (2007). Effects of union type on division of household labor: Do cohabiting men really perform more housework? *Journal of Family Issues*, 28(9), 1246–1272. <https://doi.org/10.1177/0192513X07300968>
- Dribe, M., & Stanfors, M. (2009). Does parenthood strengthen a traditional household division of labor? Evidence from Sweden. *Journal of Marriage and Family*, 71(1), 33–45. <https://doi.org/10.1111/j.1741-3737.2008.00578.x>
- Džambazovič, R. (2015). Reprodukčné a rodinné správanie na Slovensku (sociologická interpretácia trendov) [Reproductive and familial behaviour in Slovakia (sociological interpretation of trends)]. In I. Chorvát & R. Džambazovič (Eds.), *Rodina na Slovensku v teórii a vo výskume [Family in Slovakia in theory and in research]* (pp. 11–52). Stimul.
- Elder, G. H. (1998). The life course as developmental theory. *Child Development*, 69(1), 1–12. <https://doi.org/10.2307/1132065>
- Eurostat (2009) Harmonised European time use surveys 2008 guidelines. Publications Office of the European Union, 2009. <https://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/ks-ra-08-014>
- Eurostat. (2020). *Harmonised European time use surveys (HETUS) 2018 guidelines* (p. 2020). Publications Office of the European Union. <https://doi.org/10.2785/160444>
- Evertsson, M. (2014). Gender ideology and the sharing of housework and child care in Sweden. *Journal of Family Issues*, 35(7), 927–949. <https://doi.org/10.1177/0192513X14522239>
- Evertsson, M., & Neramo, M. (2004). Dependence within families and the division of labor: Comparing Sweden and the United States. *Journal of Marriage and Family*, 66(5), 1272–1286. <https://doi.org/10.1111/j.0022-2445.2004.00092.x>
- Evertsson, M., & Neramo, M. (2007). Changing resources and the division of housework: A longitudinal study of Swedish couples. *European Sociological Review*, 23(4), 455–470. <https://doi.org/10.1093/esr/jcm018>

- Ferge, Z. (1997). Women and social transformation in Central-Eastern Europe: The “Old Left” and the “New Right.” *Czech Sociological Review*, 5(2), 159–178.
- Gershuny, J., Bittman, M., & Brice, J. (2005). Exit, voice, and suffering: Do couples adapt to changing employment patterns? *Journal of Marriage and Family*, 67(3), 656–665. <https://doi.org/10.1111/j.1741-3737.2005.00160.x>
- Greene, W. (2018). *Econometric analysis*. Pearson.
- Greenstein, T. N. (2000). Economic dependence, gender, and the division of labor in the home: A replication and extension. *Journal of Marriage and Family*, 62(2), 322–335. <https://doi.org/10.1111/j.1741-3737.2000.00322.x>
- Grunow, D., & Evertsson, M. (2019). New parents in Europe: Work-care practices, gender norms and family policies. *Edward Elgar Publishing*. <https://doi.org/10.4337/9781788972970>
- Grunow, D., Schulz, F., & Blossfeld, H.-P. (2012). What determines change in the division of housework over the course of marriage? *International Sociology*, 27(3), 289–307. <https://doi.org/10.1177/0268580911423056>
- Grünwald, O., Damman, M., & Henkens, K. (2022). The experiences of grandparents looking after their grandchildren: Examining feelings of burden and obligation among non-custodial grandparents. *Ageing & Society*. <https://doi.org/10.1017/S0144686X22001027>
- Guryan, J., Hurst, E., & Kearney, M. (2008). Parental education and parental time with children. *Journal of Economic Perspectives*, 22(3), 23–46. <https://doi.org/10.1257/jep.22.3.23>
- Hallberg, D., & Klevmarcken, A. (2003). Time for children: A study of parent’s time allocation. *Journal of Population Economics*, 16(2), 205–226. <https://doi.org/10.1007/s001480200133>
- Hamplová, D., Chaloupková, J. K., & Topinková, R. (2019). More money, less housework? Relative resources and housework in the Czech Republic. *Journal of Family Issues*, 40(18), 2823–2848. <https://doi.org/10.1177/0192513X19864988>
- Hersch, J., & Stratton, L. S. (1994). Housework, wages, and the division of housework time for employed spouses. *The American Economic Review*, 84(2), 120–125.
- Hideg, I., Krstic, A., Trau, R. N. C., & Zarina, T. (2018). The unintended consequences of maternity leaves: How agency interventions mitigate the negative effects of longer legislated maternity leaves. *Journal of Applied Psychology*, 103(10), 1155–1164. <https://doi.org/10.1037/apl0000327>
- Hook, J. L. (2010). Gender inequality in the welfare state: Sex segregation in housework, 1965–2003. *American Journal of Sociology*, 115(5), 1480–1523. <https://doi.org/10.1086/651384>
- Hook, J. L., Ruppner, L., & Casper, L. M. (2021). Occupational characteristics and parents’ childcare time. *Journal of Marriage and Family*, 84(1), 210–229. <https://doi.org/10.1111/jomf.12768>
- Kan, M. Y., Sullivan, O., & Gershuny, J. (2011). Gender convergence in domestic work: Discerning the effects of interactional and institutional barriers from large-scale data. *Sociology*, 45(2), 234–251. <https://doi.org/10.1177/0038038510394014>
- Kaščáková, A., Nedelová, G., & Považanová, M. (2013). Determinants of the unpaid work in Slovakia. *Statistika*, 93(1), 47–55.
- Kika, M., & Martinkovičová, M. (2015). Neplatená práca v slovenských domácnostiach—Výskum, výsledky a súvislosti [Unpaid work in Slovak households—Research, results and links.]. *Sociológia*, 47(5), 474–503.
- Kil, T., Neels, K., & Vergauwen, J. (2016). Gender inequality in the division of housework over the life course: A European comparative perspective. In D. Mortelmans, K. Matthijs, E. Alofs, & B. Segaert (Eds.), *Changing family dynamics and demographic evolution: The family kaleidoscope* (pp. 51–80). Edward Elgar Publishing.
- Killewald, A., & Gough, M. (2010). Money isn’t everything: Wives’ earnings and housework time. *Social Science Research*, 39(6), 987–1003. <https://doi.org/10.1016/j.ssresearch.2010.08.005>
- Kim, E. H. W., & Cheung, A.K.-L. (2019). The gendered division of household labor over parenthood transitions: A longitudinal study in South Korea. *Population Research and Policy Review*, 38(4), 459–482. <https://doi.org/10.1007/s11113-018-09508-9>
- Klímová Chaloupková, J. (2018). Rozdělení domácí práce a hodnocení jeho spravedlnosti v České republice: existují rozdíly mezi manželskými a nesezdanými páry? [The division of housework and assessment of its equitability in the Czech Republic: Are there differences between married and cohabiting couples?]. *Sociologický Časopis*, 54(4), 593–624. <https://doi.org/10.13060/00380288.2018.54.4.415>
- Knight, C. R., & Brinton, M. C. (2017). One egalitarianism or several? Two decades of gender-role attitude change in Europe. *American Journal of Sociology*, 122(5), 1485–1532. <https://doi.org/10.1086/689814>
- Kolpashnikova, K., & Kan, M.-Y. (2020). Gender gap in housework. *Journal of Comparative Family Studies*, 51(2), 154–187. <https://doi.org/10.3138/jcfs.51.2.04>
- Kroska, A. (2004). Divisions of domestic work: Revising and expanding the theoretical explanations. *Journal of Family Issues*, 25(7), 890–922. <https://doi.org/10.1177/0192513X04267149>
- Lachance-Grzela, M., & Bouchard, G. (2010). Why do women do the lion’s share of housework? A Decade of Research. *Sex Roles*, 63(11–12), 767–780. <https://doi.org/10.1007/s11199-010-9797-z>
- Leopold, T., Skopek, J., & Schulz, F. (2018). Gender convergence in housework time: A life course and cohort perspective. *Sociological Science*, 5, 281–303. <https://doi.org/10.15195/v5.a13>
- Lewin-Epstein, N., Stier, H., & Braun, M. (2006). The division of household labor in Germany and Israel. *Journal of Marriage and Family*, 68(5), 1147–1164. <https://doi.org/10.1111/j.1741-3737.2006.00320.x>
- Lothaller, H., Mikula, G., & Schoebi, D. (2009). What contributes to the (im)balanced division of family work between the sexes? *Swiss Journal of Psychology*, 68(3), 143–152. <https://doi.org/10.1024/1421-0185.68.3.143>
- Lundberg, S., & Pollak, R. A. (1996). Bargaining and distribution in marriage. *Journal of Economic Perspectives*, 10(4), 139–158. <https://doi.org/10.1257/jep.10.4.139>
- Mandel, H., & Lazarus, A. (2021). Contextual effects on the gendered division of housework: A cross-country and cross-time analysis. *Sex Roles*, 85(3–4), 205–220. <https://doi.org/10.1007/s11199-020-01215-0>
- Martinengo, G., Jacob, J. I., & Hill, E. J. (2010). Gender and the work-family interface: Exploring differences across the family life course. *Journal of Family Issues*, 31(10), 1363–1390. <https://doi.org/10.1177/0192513X10361709>
- Midgette, A. J. (2020). Chinese and South Korean families’ conceptualizations of a fair household labor distribution. *Journal of Marriage and Family*, 82(4), 1358–1377. <https://doi.org/10.1111/jomf.12673>
- Miller, P., & Bowd, J. (2014). Family time economies and democratic division of work. *Journal of Family Studies*, 20(2), 128–147. <https://doi.org/10.1080/13229400.2014.11082002>
- Miranda, V. (2011). *Cooking, caring and volunteering: Unpaid work around the world*. (OECD Social, Employment and Migration Working Papers No. 116). <https://doi.org/10.1787/5kghrjm8s142-en>
- OECD. (2020). *OECD employment outlook 2020 Worker security and the COVID-19 crisis*. OECD Publishing. <https://doi.org/10.1787/1686c758-en>
- Ondrejko, P., & Majerčíková, J. (2006). Zmeny v spoločnosti a zmeny v rodine—Kontinuita a zmena Príspevok k diskusii o charaktere rodiny na Slovensku [Changes in society and changes in family—continuity and change. A contribution to the discussion about the character of family in Slovakia]. *Sociológia*, 38(1), 5–30.

- Ophir, A., & Polos, J. (2022). Care life expectancy: Gender and unpaid work in the context of population aging. *Population Research and Policy Review*, 41(1), 197–227. <https://doi.org/10.1007/s11113-021-09640-z>
- Pailhé, A., Solaz, A., & Stanfors, M. (2021). The great convergence: Gender and unpaid work in Europe and the United States. *Population and Development Review*, 47(1), 181–217. <https://doi.org/10.1111/padr.12385>
- Pinho, M., & Gaunt, R. (2021). Biological essentialism, gender ideologies, and the division of housework and childcare: comparing male carer/female breadwinner and traditional families. *The Journal of Social Psychology*. <https://doi.org/10.1080/00224545.2021.1983508>
- Považanová, M., Kollár, J., Kika, M., & Nedelová, G. (2019). Unpaid work performed by younger members of households up to 26 years in Slovakia. In M. Boďa & V. Mendelová (Eds.) *Proceedings of the 22nd International Scientific Conference on Applications of Mathematics and Statistics in Economics (AMSE 2019)*. <https://doi.org/10.2991/amse-19.2019.16>
- Rexroat, C., & Shehan, C. (1987). The family life cycle and spouses' time in housework. *Journal of Marriage and the Family*, 49(4), 737. <https://doi.org/10.2307/351968>
- Sayer, L. C. (2005). Gender, time and inequality: Trends in women's and men's paid work, unpaid work and free time. *Social Forces*, 84(1), 285–303. <https://doi.org/10.1353/sof.2005.0126>
- Schober, P. S. (2013). Gender equality and outsourcing of domestic work, childbearing, and relationship stability among British couples. *Journal of Family Issues*, 34(1), 25–52. <https://doi.org/10.1177/0192513X11433691>
- Schulz, F. (2020). Trends in children's gendered housework performance. Time use evidence from Germany, 1991–2013. *Child Indicators Research*, 13(4), 1313–1334. <https://doi.org/10.1007/s12187-019-09702-x>
- Sevilla-Sanz, A., Gimenez-Nadal, J. I., & Fernández, C. (2010). Gender roles and the division of unpaid work in Spanish households. *Feminist Economics*, 16(4), 137–184. <https://doi.org/10.1080/13545701.2010.531197>
- Shelton, B. A., & John, D. (1996). The division of household labor. *Annual Review of Sociology*, 22, 299–321. <https://doi.org/10.1146/annurev.soc.22.1.299>
- Sorensen, A., & McLanahan, S. (1987). Married women's economic dependency, 1940–1980. *American Journal of Sociology*, 93(3), 659–687. <https://doi.org/10.1086/228792>
- Stewart, J. (2013). Tobit or not tobit? *Journal of Economic and Social Measurement*, 38(3), 263–290. <https://doi.org/10.3233/jem-130376>
- Stier, H., & Lewin-Epstein, N. (2000). Women's part-time employment and gender inequality in the family. *Journal of Family Issues*, 21(3), 390–410. <https://doi.org/10.1177/019251300021003006>
- Sullivan, O. (1997). The division of housework among “remarried” couples. *Journal of Family Issues*, 18(2), 205–223. <https://doi.org/10.1177/019251397018002005>
- Sullivan, O. (2013). What do we learn about gender by analyzing housework separately from child care? Some considerations from time-use evidence: Gender, housework, child care. *Journal of Family Theory & Review*, 5(2), 72–84. <https://doi.org/10.1111/jftr.12007>
- Sullivan, O., & Gershuny, J. (2013). Domestic outsourcing and multitasking: How much do they really contribute? *Social Science Research*, 42(5), 1311–1324. <https://doi.org/10.1016/j.ssresearch.2013.05.004>
- Szinovacz, M. E. (2000). Changes in housework after retirement: A panel analysis. *Journal of Marriage and Family*, 62(1), 78–92. <https://doi.org/10.1111/j.1741-3737.2000.00078.x>
- Thévenon, O. (2011). Family policies in OECD countries: A comparative analysis. *Population and Development Review*, 37(1), 57–87. <https://doi.org/10.1111/j.1728-4457.2011.00390.x>
- Treas, J., & Drobnič, S. (2010). *Dividing the domestic: Men, women, and household work in cross-national perspective*. Stanford University Press.
- Treas, J., & Lui, J. (2013). Studying housework across nations. *Journal of Family Theory & Review*, 5(2), 135–149. <https://doi.org/10.1111/jftr.12006>
- Treas, J., & Tai, T. (2016). Gender inequality in housework across 20 European nations: Lessons from gender stratification theories. *Sex Roles*, 74(11–12), 495–511. <https://doi.org/10.1007/s11199-015-0575-9>
- West, C., & Zimmerman, D. H. (1987). Doing gender. *Gender and Society*, 1(2), 125–151. <https://doi.org/10.1177/0891243287001002002>
- Zellner, A. (1962). An efficient method of estimating seemingly unrelated regression equations and tests for aggregation bias. *Journal of the American Statistical Association*, 57(298), 348–368. <https://doi.org/10.2307/2281644>

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