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LFS&TIME: A DATABASE ON WORKING CONDITIONS, HOURS ARRANGEMENTS
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DISCLAIMER

This appendix contains the working papers being written during the LFS&TIME project. The purpose of the working papers (WP) was to investigate the reliability of the LFS in capturing 'the labour force' by conducting a thorough literature study on the concept of work and formulating variables to be used in analyses (WP1), to investigate the validity of the LFS in capturing working hours, working times and working schedules (WP2 and WP3), and to demonstrate the strength of a merged LFS&TIME database by studying test cases that use elements of all three databases included (LFS, WG and TUS) (WP4-6).

These working papers serve the attainment of the goals specified in the LFS&TIME project outline and thus form an integral part of the project and do not serve as stand alone documents. Please always refer to the project when using results from these papers.

APPENDIX A: LFS&TIME WORKING PAPER 1

Reliability: Measuring work

B. Fusulier & S. Van Hollebeke

PART 1: A REVIEW OF THE LITERATURE ON SOCIAL TIMES

Introduction

The crumbling of labour society (Castel, 1999), feminization of the labour market, persistent inequalities between men and woman, flexibility of labour and working times, increased geographical mobility of people, more diversified family patterns, the increase in life expectancy, ... (Fusulier, 2013) are all transformations of social structures and practices or attitudes in the everyday life of people. These transformations have disrupted the organization of social times (working times and time use in other domains of life). For example, longer length of study, longer retirement age, shorter work weeks (from 40 hours to 35 hours), more atypical work schedules, lesser spatio-temporal embedding of work, etc.

Nevertheless, the bursting and spread of work should not suggest that the amount of free time is higher than before. We could rather wonder whether these changes are not balanced by an intensification of work as well as by an infiltration of work in private life. For instance, people who have more autonomy and flexibility at work sometimes work from home and for these people the frontier between work and non-work is more blurred. In addition, domestic and parental tasks, especially for women, could be considered as work as well rather than as free time. In this context, the question that guides our thought is "**how should work and its characteristics be captured today, how can it be defined and measured?** We will enrich the approach of social times and of their plurality by identifying the definitions of work in literature and by questioning the current measuring instruments. Should coffee breaks, travel times, domestic work, books we read for work or emails that we read at night be integrated in the definition of work?

The aim of the working paper is to present the state of art of literature and the conceptual framework in order to understand the work activity as a social time amongst other social times. We will show how time is socially and culturally constructed and present what we understand by "social time"? Why do we speak about the articulation of social times? Why are they plural? Why are they qualified as "social"? And finally, what is the role of working time in these social times? (Laloy 2010). After that, we will examine the main issues to understand the evolution of work and its boundaries from the Fordist temporal regime to the new temporal regime.

Mutations and reorganization of Social times – Historical context

The plurality of time and social nature of time.

According to Jacques Attali (1982, 15), "every living species perceives the duration and speed, (…) distinguishes the present from the past ". Even if there is a common temporal perception thanks to the perception of degradation of nature, of aging bodies or time flow between days and nights, time should not be understood as a preexistent reality which belongs to the natural order of things and which would be obvious to everyone.

Time feels natural to us, but it is not preexistent. It is the result of the history and actions of our institutions (Bodson, 2010). **Time** exists because of social and cultural construction done which helps to make distinction and to make sense of the world around us. Time contributes to structure durations and **collective rhythms** in society and to synchronize some activities and other aspect of the collective life, embodied into institutions such as work hours, opening hours of administrations, shops, restaurants, etc. by producing a stable environment (Wallemacq, 1988, 229 ; Attali, 1982, 16, Lesnard, 2004, 62). According to Lesnard (2004, 62), "Scheduling is a crucial dimension of activities since (…) time is socially differentiated". Indeed, "the flow of the day is not a succession of identical moments filled in by activities » (Lesnard, 2004, 61). Each hour, day, week, etc. is different from one another and that differs from one society to another (Lesnard, 2004, 62). In this research, we opt for a plural vision of time and we would like to exceed the representation of a single dominant time. The concept of time has to be seen as a "code and a generalized and symbolic medium" used to organize and structure social life and give a meaning to reality (Elchardus et Glorieux, 1988, 97).

There are different times of life which could be personal time, private time or public and **social time**. The nature of time depends on the significance that is given and has consequences for the analysis of the use of time. If the category of time is used to measure the realization of activities which are incorporated into the social structure, it is a social time (Elchardus et Glorieux, 1988). It involves social roles such as roles of a mother-father or of a researcher at university. Individuals have multiple roles and the articulation of social times means the way individuals can combine their enrolment in different space. According to Laloy (2010, 19), the notion of "social times" means that time does not exist independently form the perception of individuals. The inclusion of individuals in several temporalities does not result from purely individual choices but from the interaction with other rhythms and temporalities. Individuals are integrated into "time frames" which operate as "time-givers". The social nature of time "does not only mean that time is socially structured but also that people do and when they do it depends on their expectations about what others do or are supposed to do" (Lesnard, 2004, 61).

The definition of work and labour in the Fordist society

Calendars and clock are "pure social construction to improve the coordination and the synchronization of collective activities" (Lesnard, 2004, 62). In contemporary Western societies, time is structured according to the construction which was made during industrialization (Thompson, 1979). It is the Fordist temporal regime that rules our lives, and work schedules have

influenced the temporal organization of our society (Vasquez, 1979, 119). The separation between weekdays and weekendays "represents one of the most achieved parts of this social regulation" (Lesnard, 2004, 62). All the activities, whether for employed workers or unemployed, are planned and organized in function of a work schedules. Here, the concept of time is characterized as unidirectional and irreversible, with a beginning and an end. In this conception, time can be "accounted for in the same manner than money" (Lesnard, 2004). Time flows like a river's current which we cannot reverse (Lalive d'Epinay, 1988, 15). This is what makes its rarity and its value. People don't want to waste time because time means money for them (Thompson, 1979). According to Arlie Russell Hochschild (2001, 49), "saving time was becoming the sort of virtue at home it had long been at work" (Bodson, 2010).

The concept of **work** as it is understand today has appeared in what is called the "labour society". It refers to the "productive work" by opposition to the domestic or reproductive work. According to this definition, a salaried person offers his productivity in exchange of a payment (salary) and a protection system (Nicole-Drancourt, 2009, 12). Michel Lallemant gives us a good picture on the diversity of work definitions. According to him, the central idea of these definitions is that work involves social dimensions. One activity can be considered in some cases as a work but not in other cases. For instance, cooking for family a Sunday or for a restaurant (Lallemant, 2010). That is why, work in the labour society is considered as a labour market activity.

The Fordist temporal regime which affects the synchronization between activities and times, is organized around three main institutional conventions.

First, the "standard employment" which is characterized by very strict and regular working times (8 hours of paid work during the day). Individuals work on specific days and at determined hours. The days are divided in 24 hours with three durations of 8 hours: 8 hours for working, 8 hours for private life and 8 hours for sleeping. This convention is characterized by the succession of the activity during the day in which activities outside work are located on the margins of working time (evenings, weekends, holidays). In that temporal regime, if you know the schedule of someone on Monday, it is possible to predict almost perfectly his schedule on Tuesday, Wednesday, Thursday and Friday. The schedules are mostly identical each day and the number of working days is the same each week (Devetter, 2002). The standard employment is defined as a stable and full-time work throughout the life course (Fusulier & Nicole-drancourt, 2015).

The second Fordist convention that rules our lives is linked to the gender and sexual division of work between productive men and reproductive women. This division is also related to a formal separation between spaces assigned to productive activities and those to reproductive activities.

The last convention is related to the roles matched to ages of life. The collective representations and social organization of time are influenced by the linear model of life course. According to this model, education is for young people, work activity for adults (productive work for men and reproductive for women) and rest or retirement for elderly (Fusulier, 2014). In this regime, it was work that most affected the construction of individual and collective identities.

The fordist conventions and their crisis

Even if the previous temporal regime stays dominant, it is no longer consistent and do not reflect the time experienced by individuals. Today, it is the ethos of fulfillment that seems important. People want to flourish in sphere of work but also in their family, through their involvement in a sports club or in an association,…

Furthermore, we see that the distinction between the different spheres of activity (work, family, leisure, personal time, …) as postulated in the Fordist temporal regime is no longer so strict and clear as before (Mercury, 1988). The place of work in the time of life has changed. The conception of chosen time between two separated and impermeable world ("or-or") lose its intensity in favor of a sharing and conciliation of time (and-and). (Fusulier & Del rio carral, 2012, 85). Nevertheless, the social times seem increasingly competitive and less and less compatible with each other (Nicole-drancourt, 2009, 1).

With the growing importance given to time outside work we also see mutation in the organization of work. Working times become more flexible and workers have more autonomy (part-time work, 35 hours), new technologies of information and communication involves mutation in the temporal and spatial boundaries of work, the commuting time increases, the desire of women's emancipation challenge the gender division of spheres and create the need to conciliate the two spheres. Finally, the plurality of commitment during life through different position in the life course brokes with the dominant model of one typical life course.

In today's situation of the labour market, it is difficult to define and predict precisely time and space uses. Social practices change and spheres of existence are much more permeable. For instance, length of study become longer, enter in the labour market begin later, even the working periods are sometimes interrupted with moments of big uncertainty and job insecurity (unemployment, cumulative short term contract, dismissal and early retirement,…) and even senior could follow some training again in another purpose than work. These changes involve blurring of the boundaries between time uses in different spheres of life. In next sections of this paper we are going to present most pressing issues in the literature linked to the definition of contemporary work, working times and work patterns.

The new organization of social times

A series of studies based on Time Use studies, contributes to improve the knowledge about the diversity and the boundaries of work by analyzing the complex organization of working time and the unequal distribution of social times (Chenu & Lesnard, 2006).

According to these studies, those who postulated a decrease in working times are mistaken. It is not really a decrease but rather a complexification of **working schedules** which become more atypical than before. The principal question that guides these studies is to understand *how working hours are distributed across the day and what are the different ways to organize work time on a weekly base, including both week day and weekend day?* The aim of these researches is to study, by constructing typologies, the distribution and organization of working hours across the day or the week. Here, we highlight that the decrease in working times for a certain person has produced more flexible, variable and atypical work schedules (night work, weekend work, shift work, …), which are also accompanied by precarious working conditions and status (part-time job, temporary, …) (De Saint Pol et Lesnard, 2009). The authors have identified 5 types of working schedules in order to understand the "distribution of work hours over the day" : 1) standard schedules (9 to 17o'clock); 2) shifted schedules (morning, evening or night) ; 3) long work days (for a length of 10h) ; 4) irregular, fragmented schedules (two working periods interrupted by long breaks); 5) other types (days off, without paid work) (Chenu & Lesnard, 2006 ; de Saint Pol & Lesnard 2009). Furthermore, six types of weekly work schedules were identified : 1) standard five-days week (39 hours of work, non-worked weekend); 2) non-standard five-days week (non-worked weekend but at least one long day and a flexible organization of working time); 3) six or seven days week (long day and at least one worked day during the weekend); 4) shifted and fragmented days week (night work week and lack of temporal autonomy); 5) heterogeneous four-days week with low working times. According to these typologies, there is a "change in the organization of time". Nowadays, "paid work is less confined to traditional business hours and weekdays" (Ruppaner & Treas, 2014, 2).

The H. Presser's study (2003) highlights dynamics in the American society, which could be also relevant for European society. According to her, the transformations in the economic field (feminization of the labour market), demographic changes (aging population, growth of dual-earner couples) and technological mutations (e.g. smartphones, wireless broadband connections (4G), …) have contributed to the growing demand for services, such as nursery, food, transport or medical services and entertainment during evenings, nights and weekends, but also the possibility to be available 24/7; in other words for employment at nonstandard times. They have contributed to the emergence of the society of 24 hours a day, 7 days a week namely a society where people have to be available even around-the-clock "in labour market activity as well as in our interpersonal relations" (Presser, 2003, 1-5). Especially in the USA, which is considered to be a 24 hour society, non-standard work, such as weekend work, is more common and the time which was mainly dedicated to leisure, rest and family before, is now also dedicated to paid work or to other work related activities (Ruppaner&Treas, 2014, 2). In Belgium and other European countries, the organization of work, even if it appears to be moving in that direction, do not result in a similar increase in non-standard working schedules (Glorieux, Mestdag, et al., 2008). It depends on the type of industry, firm or service. "Night shift is not uncommon among conductors but is pretty much inconceivable among secretaries, and to a lesser extent among executives" (Lesnard, 2004, 63). The general trend remains the standard work hours rather than weekend or night work. This is

reinforced since the working time has been reduced. Before some worked 35 hours per week and 5 hours on Saturdays. These analyses contribute to the refutation of the "end of work" and "leisure civilization" theories. They show us the flexibility of work schedules and the difficulty of measuring work with precision and to know when exactly people start working and when they stop.

Unequal distribution in the social space: Flexibility and amount of worked hours

According to Chenu and Lesnard (2006), "the different ways of organizing work times at the weekly scale are not at all evenly distributed across social space". First of all, there is a strong link between **work hours** and the position of individuals in the economic system (type of job, activity sector, position in the social ladder). Previously, the number of working hours was more important at the bottom of the social economic status, the "gradient of working time – social position" would be reversed today. Paradoxically, the employees who are favorably positioned in the economic system have more "temporal autonomy" but longer work weeks and they are subject to an increase in working times. Especially for this group who works a lot of hours and who brings work back home, it's not always clear when work starts and when it stops. The greater the flexibility of working schedules is, the higher the feeling of being overworked is. On the contrary, "the least qualified employees" at the bottom of the social scale have, on average, shorter weeks and a decline in working times. Nevertheless, it often goes together with an increase in shifted and fragmented schedules, such as weekend employment, and a lower degree of control of their working times, which are rather imposed by employer (St. Pol and Lesnard, 2009; Ruppanner and Treas, 2014, 3). These work rhythms are rich indicators to show social disparity and temporal inequality. According to Chenu and Lesnard (2006), J. Gershuny has identified that "the increased amount of work time among high-skilled employees and the reduced work time of low-skilled ones" indicates a shifting of workload towards social space and not the advent of a leisure society. We will see that a recent evolution of the labour market has introduced a new reality of work: the dual earner couples, the question of synchronization/desynchronization of working schedules and the repartition of domestic tasks between spouses.

Gender inequalities and dual-earner couples: women's second shift

Some authors emphasize the phenomenon of the "massive access of women to the labour market" also called the "feminization of labour market" since the first feminism revolution after the second's world war. This transformation has questioned the traditional roles and the gender convention of the "male breadwinner" and the "female carer". According to this convention, women are totally dependent on their husband (Nathalie Morel in Nicole-Drancourt, 2009). However, women have begun a "silent revolution" by investing in the labour market (Méda, 2001). They wanted to acquire more autonomy regarding their household and also a better financial protection in case of marital relationship breaks down (Morel, 2009, 30). Even more, men want more and more take part in child care but they still stay the principal earner of the household resources.

Since then, we could think the repartition of paid work between men and women is more egalitarian, but there are still inequalities in the access to different kinds of work, status, or

schedules (Méda, 2001, 18). For instance, D. Méda (2001, 15) shows in her study that French women are paradoxically better qualified than men, but the inequalities between men and woman at work are still strong. Women (especially those with children) are overrepresented in precarious labour market positions, especially in low qualified and low-paying jobs (part-time job, internships, fixed-term contract, unemployment, weekend employment,…). They mainly work in service sectors where Saturday and Sunday work is relatively common (Ruppanner and Treas, 2014). And due to the "glass ceiling", it is difficult for them to have access to high professional positions (Méda, 2001, 20-22). These unequal repartitions of paid work influence wives and husbands' shares of household labour. For example, Ruppanner and Treas (2014, 4-7) say that "weekend employment is relevant to the organization of family life, to the gendered division of unpaid labour in the home (…) According to the time availability argument, the partner with less discretionary time to do housework, will do a smaller share of the household labour (…) these theories recognize that women's general economic disadvantage explains, in part, why they do more housework than men".

As Barrière-Maurisson (2012, 7) says, "women are still the big losers" because in addition to these labour market inequalities, there are inequalities in the family. Even if the share of paid work and household labour between men and women is more fair and egalitarian than before, some studies reveal that gender inequalities are also persistent in the repartition of domestic tasks (household work, care and education of children) (Glorieux, Van Tienoven, Minnen, 2013). Generally, women work more than men if we consider both paid work and domestic and parental work. **Parental time** which is the time spent with and for children (or elderly), represent nearly 26 hours for women and 13 hours for men. Therefore, most of women have a "double day of work" (Méda, 2001). Hochschild defined this as a "second shift" because modern women, who work full-time, have a second shift in the evening: household work and childcare. They support all activities and tasks for paid work, for their children and their spouses at the same time. Even if they work on weekends, women do more housework than men both weekday and weekend (Ruppanner and Treas, 2014, 13).

Nevertheless, it is not only a question of quantity of time spent with or for children. The unequal repartition of work done at home is also linked to the **quality of time** spent by each parent with their children (Barrière-Maurisson, 2012, 7). According to H. Presser (2003), fathers participate more than before in the traditionally female household chores (cooking, cleaning, ironing,...) rather than mothers when they have shifted work schedules. And fathers show an increasing desire to spend time taking care of their children. However, in other situations, ideologies and stereotypes of male and female traditional roles are still present. The mother spends more time on inflexible and routine tasks such as housework (dishes, shopping, laundry, …) and childcare, while more flexible or leisure activities such as watching television, doing gardening are dominant among fathers (Chenu and Lesnard, 2006; Barrière-Maurisson, 2012; Méda, 2001). We will see that institutions have supported women's access to the labour market, but there are still efforts to do in order to reduce inequalities between men and women in the domestic sphere, to find solutions to ensure the accumulation of tasks and share the "double burden" (Nicole-Drancourt, 2009, 31; Fusulier,

2014). In the next part, we are going to put forward several hypotheses through the entry of the importance of interference between professional and private sphere.

An entry by the question of interference between professional and private sphere

In this part, we will present our position for analyze transformation of work through the prism of interference between spheres of life and the impact on everyday life.

Blurring boundaries of work

The next debate examines the effect of the increase in the demand of non-standard labour (night work, weekend, shifted work, part-time work,…), in other words of the new reality of work, on the lived experience (social and family life) of some workers. The multiplication of work contracts and work status (temporary work, part-time work, internship, self-employment, tele-working…) has had an impact on working times and on the use of time freed from paid work. We have seen that the distribution of working times has changed the boundaries between work and non-work, which become more blurred, vaporous.

For some authors, these new work schedules are so crumbled and incompatible with family life that the conciliation becomes nearly unbearable (Méda, 2011). The idea that time use in working life and in private life is clearly separated is outdated. The temporal diversities and recompositions have created a "time bind" or a "double shift" and have contributed to the disappearance of the boundary between the different spheres of professional and non-professional activities (Aït Ali and Rouch, 2013, 8; Presser, 2003). The porosity of social spheres could create some tensions in the lived experience of time and some "difficulties of juggling time" (Presser, 2003, 59). The timing of labour force activity has an impact on the temporality of home activity; and the social and family life concerns also have an impact in the workplace (Durand and Pichon, 2001). The use of time in both spheres is linked. For instance, in the spatial organization of some workers' office we can see elements from the private sphere (family picture, drawing from children, …) and some workers have to deal with private problems at work (paid bills, take an appointment with doctor, …). We can see the same logics for instance at house. Sometimes home looks like an office. Some people take work at home.

Together time: synchronization-desynchronization

The working times have been diversified with more employment forms at the margin of the standard wage system (Célérier and Tengour, 2001, 146). "Individuals' daily schedules do not only give an account of individual lives but also of their lives as members of a particular family and

society with a particular set of cultural and economical capitals" (Lesnard, 2004, 64). Contrary to what some social scientists thought, it is not uncommon today to find families where at least one spouse does night work but does the same amount of time as the other who work daily fixed schedules. The negative consequences of non-standard schedules are the increase in marital instability, the decrease in time spent on taking care of children and the transformation of child care arrangements which become more complex. However, the consequences are different depending on the family structure (two-earner couple or not, married or single, family with or without children, age of children, low-income, level of education,...). Within dual-earner couples, for instance, the time spent together in domestic life is fewer than other couples. The "lack of time together" is due to the combination of long working hours and the presence of (younger) children. In other words, to the "off-scheduling of their paid work hours" (Glorieux, Minnen & van Tienoven, 2010, 282-286).

Presser (2003) questions the effects of these non-standard schedules on family structure. The growth of non-standard work schedules, particularly for economically disadvantaged people (youth, working poor, single women with young children, less educated,...), has produced a new "home-time family structure" (Presser, 2003, 216). These "new family time requirements" combined with those related to the growth of service sector, cause big issues of synchronization of marital schedules and rhythms in daily life (Boulin & Silvera, 2001, 278). The schedules may be desynchronized because the number of worked hours by spouses differ or is distributed differently throughout the days and weeks. The synchronization between work life, family life and social life becomes chaotic (Pichon, 2001, 240). Non-standard working hours and marital desynchronization are rarely a choice but rather a result of what the employer imposes to spouses individually (Chenu and Lesnard, 2006). Even if "couples spend over half of their total time together" (Glorieux, Minnen & van Tienoven, 2010, 285), the dual earner couples have difficulties to coordinate their working hours over the days of the week. For instance, "if a husband works from 6 am to 2 am and his wife from 9 am to 5 pm, then two spouse have an eleven hours long family workday among which five hours of work are in common (synchronized work), hence desynchronized work amount to six hours" (Lesnard, 2004, 64). As soon as one of the partners spent time on paid work and is out working, "it becomes difficult to do things together" (Glorieux, Minnen & van Tienoven, 2010, 286).

Low temporal autonomy for certain employees whose schedules are atypical, shifted or fragmented leads to a "stronger desynchronization of working hours" (de Saint Pol and Lesnard, 2009, 18). Spouses are often not together at home in the evening and parents are not at home at the same time with their children (Presser, 2003). That could lead to a "decrease of marital quality" (Glorieux, Minnen & van Tienoven, 2010, 286). On the contrary, couples with better social conditions have standard or long working days and therefore they are more synchronized (de Saint Pol and Lesnard, 2009, 21). Therefore, there is a new inequality linked to time relation (synchronized – desynchronized / chosen – forced).

Quality time: marital instability and child care

Nevertheless, we have to avoid the normative reading according which the synchronization would be the privilege of the rich while the synchronization would be the misery of the poor. Indeed, the synchronization of couple time is not always synonymous with satisfaction. Arlie Russell Hochschild (2001, 50) presents the concept of "quality time" which includes both the practice and subjective availability. It is linked to the time spend together within a household between partners or parents and children and the relationship satisfaction (Glorieux, Minnen & van Tienoven, 2010, 282). The idea is that "scheduling intense periods of togetherness can compensate for an overall loss of time in such a way that a relationship will suffer no loss of quality (…) instead of nine hours a day with child, we declare ourselves capable of getting the "same result" with one more intensely focused total quality hour" (Russell Hochschild, 2001, 50). Being physically present doesn't necessary mean being qualitatively present. The "temporal diversity in working hours" has created a "temporal diversity at home" (Presser, 2003) and time available due to the reduction of working time is not devoted to new activities but rather to preexistent activities which are realized with quieter rhythms and more periods of rest (Boulin and Silvera, 277).

The feeling to be rushed

J.-P. Rouch (2006) questions the "temporal feeling". Some people could feel rushed, under pressure and be run out of time. For instance, the "sandwich generation" of people aged of 50 years, especially women, experiences a peak of care work. They are caught between their children, grandchildren, aging parents and a spouse who can start having health problems. On the contrary, other people could have the feeling of having too much time and to feel boredom. It could have implications "for the health and well-being of individuals and their families" (Presser, 2003).

In the next section, we will present some hypothesis on how people conciliate work with their private life or private life with work.

Conciliation and balance between work and private life

With the growth of "dual-earner families" and "non-standard schedules", the issue of "work-life balance and the social times recomposition" has become a growing field of scientific interest. It is often related to the theme of "work / family conciliation", which is, on the one hand, denounced by Héléne Périvier and Rachel Silvera (2010) as a trap for women. On the other hand, for Chantal Nicole Drancourt (2009) or Bernard Fusulier (2011, 2013) for example, it is a new issue that affects the foundations of social organization, and thereby the transformation of work and family spheres.

Strategies: micro-rituals, part-time work and services

We have seen that the work of conciliation between social times becomes harder. In this context, the temptation to re-establish the boundaries between work and non-work and even to stiffen them is big (Durand and Pichon, 2001, 60). People define the temporal and spatial boundaries of their employment or they set up micro-rituals (such as having a well scheduled day) to cope with "work overflow" (Aït Ali and Rouch, 2013).

Another important strategy for women with children "to keep the total workload in check" is the reduction of working times. Somehow, even if "working nonstandard schedules might reflect lack of options", it can also be used as a strategy to facilitate child care (Presser, 2003, 11). For instance, with part-time work, "carers" could be committed in the labour market, while taking on the family responsibilities. In their study, I. Laurijssen and I. Glorieux (2012, 2) say that "couples, particularly those with young children, limit their (total) work involvement to protect family life against too much intrusion by paid work". This strategy more often used by mothers in order to combine paid work with family life (next to host's services for early childhood, maternity leaves, parental allowance, etc) and decrease time pressure, can be identified as one of the benefits of working nonstandard schedules. Nevertheless, the population of part-time workers has diversified: we also find men and women without children who are underemployed or in a professional transition phase such as young people who try to insert into the labor market and active life or seniors who gradually leave their activity. To conclude, this employment situation is often temporary in the employment trajectory of individuals and often helps to negotiate a delicate phase in the life course (Nicole-Drancourt, 2009, 7).

Moreover, if they have not decided to postpone having children, families try to implement others personal strategies to arrange their schedules and their time use in order to response to the "tensions between work and family" (Laurijssen & Glorieux, 2013, 2). When one of the spouses is a weekend worker, he finds some strategies to ensure the allocation of housework between partners. For example, he can cut back on his housework, deferring or shifted some weekend chores, at least partially to the weekdays or parents could "outsource the care for their children and other domestic tasks to thirds" (Ruppanner and Treas, 2014, 9 ; Laurijssen & Glorieux, 2013, 2). Despite that, the worker's share of domestic responsibilities is linked to employment context and in certain country men use these strategies more successfully than women to reduce their housework shares (Ruppanner and Treas, 2014).

Work and family policies

B. Fusulier and C. Nicole-Drancourt argue that the current system makes the conciliation of social times, in particular the work/family balance, incompatible. Authorities and companies have not adapted themselves to the transformation of men and women activities. They haven't changed

working hours or work organization in order to make them more compatible with the dual-earner couple (Méda, 2011, 10). For example, companies say that they do not have to take into account private life of their employees such as gender or family characteristics. The current systems do not help to reduce inequalities between men and women in both domestic and professional spheres. According to them, the "professional and family investments are not incompatible" and can be combined whatever the gender is. However, this conciliation model ignores social and gender disparities since it assumes a degree of freedom, mobility and the absence of any relational, marital or family constraints. They reinforce the model of production/reproduction, which was dominant in the labour market: on the one hand, the "male breadwinner" who gets rid of any conjugal or family constraints and on the other hand, the figure of the "female carer" whose temporal availability is permanent for the daily operations of reproduction (Fusulier, 2013). Some authors argue the necessity to review the sexual division of labour and to allow men and women to make equivalent investment in work and other activities (Méda, 2001, 58). They highlight the necessity to rethink the organization of work in companies and social institutions, to define the place of children and the way to involve men in child care and finally, to develop childcare equipment and services (Méda, 2001; Nicole-Drancourt, 2009).

Rethinking the definition of work around the concept of the multi-activity

In this paper, we have shown that we still live in a labour society but step by step moving to a multi-active society more gender equal and organize around a new time regime which may be called "post" fordist time regime. We see a spatio-temporal disintegration of professional sphere (telecommuting, mobile work ...). The boundaries between work and non-work are more blurred. The individual has more autonomy to define his working times and his workplace, but he must be available in a more flexible way according to the expectations of the organization. The major mutation is to move from a hegemonic and binding time to an intertwined temporalities in social worlds of work and out of work that people can articulate, coordinate with a bigger degree of freedom (Dubar, 2004, 128). In this point of view, we must have a broad definition of work: paid work, private care work, domestic work, civic work.

Overcoming the binary distinction between constrained and free times

A number of sociologists who studied the relation between work and non-work have followed Joffre Dumazedier's theories (1962). Dumazedier is one of the first who has developed the sociological concept of "leisure society" (Chenu & Lesnard, 2006). He defined leisure as a time freed from the obligations and necessities of daily life. According to him, this time was "used for personal development and fulfillment thanks to the loosened control by traditional institutions such as church and family over the working classes" (Chenu & Lesnard, 2006) and made the balance with the constraints lived at work (Boulin & Silvera, 2001, 273). These theories postulated that leisure

behavior was influenced by working time (Boulin & Silvera, 273). After that, some authors have postulated a division between work and leisure with more autonomy between the logics of both spheres. According to them, the private concerns were totally absent during the working day, and work concerns were also absent in private sphere. The most radical theory argues the end of work because of the gradual decline of working times. Leisure becomes the "dominant social time" (Boulin & Silvera, 2001, 274; Amsellem, 2013). Nevertheless, contemporary authors argue that, despite the quantitative degradation of work, it is still a central time which has an important quality impact on the other social times.

Porosity of social times

There is a mutual influence between work and private sphere. On the one hand, the concerns which appear during the working time influence behavior in private sphere.

According to Laloy (2010, 33), invisible dimension of work may be present during the time apparently released from work. But, on the other hand, the concerns experienced outside work, such as values related to leisure and free time, could also have an impact on work values or on the way that employees organize their working time (Boulin & Silvera, 2001, 275-276). Boundaries between work and non-work become more porous and blurred. This porosity of social times bring us to review the radical distinction between work and leisure, or more generally between constrained time and free time (Aït Ali & Rouch, 2013, 6). Whether you are in the work sphere or in the private sphere, we can find both constrained times and times without constraint. Sometimes the commitment in work activity has a positive emotional dimension (read a book, discuss with a colleague, lunch with a friend) or is not delimited by a rigid time frame such as postulated in the Fordist temporal regim. Thus, work is not always constrained for people. Similarly, certain time outside from paid work could be experienced as a constrained time, such as housework (Aït Ali & Rouch, 2013, 6-7). There are also activities which are less clear to categorize as work rather than private time (such as work commuting). Furthermore, even while watching television, people could think about their job and for some people, even if their working times have been reduced, they have a busier life in their mind (Boulin & Silvera, 277). Rather than talking about disappearance of work, we should talk about overflowing of work's concerns on domestic sphere and inversely, and overflowing of private life's concerns on work sphere.

It is what Hochschild (2001) calls the "time bind". Working parents (mostly mothers) said that the family comes first, while few are still just thought to reduce their working time. The roles of "work" and "family life" are reversed : work becomes more "attractive" to escape to the domestic's stress; while at home more stressful demands appears. According to her "the worlds of home and work have themselves undergone momentous changes over the last thirty years, while our ways of thinking about them have not". The values of time outside paid work are being transferred in the sphere of paid work and inversely.

Conclusion

Finally, to achieve a more egalitarian and non-gendered temporal articulation, it would be necessary to exceed the persistent vision of the autonomy of "two separate worlds". The social and economic transformations which have disrupted the model of "standard employment" should be taken into account. In this project, we intend to provide a sociological criticism of the classical (Fordist) definition of work which is the dominant model of employment in most institution and companies of European countries. We argue that a binary reading which reduces work to a legal and paid activity characterized by a "daytime standard workweek" (Presser, 2003, 15) in a delimited workplace and which considers the activities outside work as a free time is not able to represent the current work reality and its diversity. This reading presents those who do not work as inactive despite the fact that they could dedicate themselves to household work (cook, cleaning, washing, gardening,…), care activities (parental work, child or elderly care), social and civic participation (associative life, religious ceremony, voluntary work, phone conversation,…), leisure, etc. ***Work and family policies, cannot ignore any longer the value of others "socially useful activities" outside paid work and have to take seriously into account the new temporal regime of a "mutli-active society"***. Individuals are multi-commited and have to fulfill specific roles (Fusulier, 2013, Barrière-Maurisson, 2012; Ruppanner & Treas, 2014; Mispelblom Beyer, 2001, 247). Working times have to be rebuilt around the concept of two-earners and two emotional and material providers of care in order to be better in line with other times and to allow men and women a better coordination between their different tasks and roles according to their various positions in their life course (Méda, 2001, 104).

To conclude, we have put the markers of a broad definition of work which include paid work, private care work, domestic work, civic work,...

Nevertheless, in this research we will focus on the category of work as linked to the idea of paid and legal work due to the fact that we have to do with the data we have. Even with this traditional definition which we think is not good enough (it doesn't take into account other paid work such as undeclared work). The goal of this project is not to give a new definition of work but to question the definition of the measure and the meaning of work.

ANNEX. Mutation of the labour society to a multi-active society

Fordist time regime	**Post-fordist time regime**
Standard employment (for men mainly) and formal working-time schedule	Flexible and atypical work schedule
Gender division of work	Dual-earner couples + gender inequality
Linear life course	Plurality of commitment and iterative commitments during the life course

PART 2: QUALITY OF METHODOLOGIES, INSTRUMENTS AND QUESTIONS: STRENGTH AND WEAKNESSES OF A NEW DATABASE

Introduction

As long as paid work was limited to the workplace and private concerns to the domestic sphere, work was easier to measure through its temporal quantity, for example, with calendar and the practice of clocking in certain factories (Mispelblom Beyer, 245). It was easier to know when the working day started and when it he stopped. There was a strict distinction between working time and times outside paid work. This distinction was associated with a clear separation of work area and area for activities outside paid work. These other times were located at the edges of work temporalities (night, weekend, day-off). When the worker left the temporal and spatial area of paid work, it was the end of his working day. This distinction was also accompanied with division of roles for women and men in each area (Laloy, 2010, 28). Work was clearly limited and formalized in a spatio-temporal area.

But, now we have seen that different social times or roles overlap in one same space and at the same time, which makes the measure harder to conceptualize. The times between spheres are porous and deformalized. For certain persons, it's more difficult to know precisely how many hours they work and when they work because it is not anymore embedded in a strict spatio-temporal area. It can be realized at all time and wherever people want. Indeed, people have certain autonomy in their work but it creates a sort of constraint and alienation because the worker has to be available at any time. The measure of working time becomes harder and the definition of work is less precise. The nature of work has changed and becomes less formalized, more immaterial. The primary sector of the economy includes the collection and use of natural resources (materials, energy and foods); the secondary sector includes factory for the transformation of raw materials and the tertiary sector includes service industries (mainly immaterial : consulting, insurance, research, administration, human services,…). Today, it is the third sector and even a fourth sector that is dominant.

The main goal of the theoretical part of the project aims a better understanding of working times, hours and arrangements and for that to adapt the methods usually used to the new societal context. The Labour Force Survey is considered as a very rich and reliable data source to evaluate economic and social evolutions in many European and non-European countries. However, there is an international growing concern about the quality of these working time estimates. The social and economic transformations has had an impact on the length, timing and scheduling of working times. Previously, people (especially man) usually worked 8 hours per day and with no variation between the days of the week. In that temporal regime, if you know the schedule of someone on Monday, it is possible to predict almost perfectly his schedule for the rest of the week. But now it is different. Working times become more flexible and workers have more autonomy to schedule their work even at atypical hours. Finally, today people are not only committed to work or to domestic sphere. They are multi-active and have to deal at the same time with child care, education, civic activities, parental work, etc. In this context, for certain persons, it's more difficult to know

precisely how many hours they work and when they work. So, the question is, are the Labor Force Survey variables sufficient to measure characteristics of work? Is the LFS still the best way to capture work?

For that, we are going to question the strengths and weaknesses of different survey methodologies to capture the use of time. We will question advantages and disadvantages of each methodology. After that, we are going to examine different research instruments which are used to measure paid work (working conditions, working hours and arrangements,…): LFS; TUS, Work grids. How these instruments can measure work and working time patterns while work is not delimited by clear spatial boundaries or a fixed schedule? Are the Labour Force Survey variables sufficient to measure characteristics of work? Could we propose new variables for capturing the temporal embeddedness of work in our everyday lives? What are the critics we can find in the literature?

A brief review of time-use research methodologies and technologies

In this section, we are going to introduce the review of time-use research methodologies. As Gershuny (2011) has pointed out, the ways of measuring time-use are diverse. However, until 2003, there was a lack of studies on the theoretical issues, the strengths and weaknesses of the existing methods of measuring time uses (Juster, Ono, et al., 2003). Since then, some studies have tried to overpass this lack. The first goal that guides our research is to understand how work and working time patterns are generally captured and measured today: what are the methodologies used to capture time-use? What are the advantages and disadvantages of each methodology? And finally, how these methodologies are translated into different research instruments to measure work and working times?

Stylized estimate questions

Most of them consist of a measurement of activity on a daily basis or over some other duration of time. A first time-use measurement methodology is the "stylized estimate questions". The questions asked try to measure the duration, quantity (*how much*), frequency (*how often*) of time devoted to various activities of respondents or members of their family. These stylized measures provide "normal" or "typical" amounts of time devoted to a particular activity per day, week, month or year. This method is structured by category of activities and respondents "are essentially asked to aggregate details of their time" into these precut categories (Juster, Ono, 2003, 22). Respondents have to recall their activities in the recent past which cause *recall issues* (Kan, Pudney, 2007, 3). Stylized questionnaire approach has range of problems "including unclarity about the *inclusiveness* of activity categories or descriptions, and uncertainties about the specified *reference period* (…) prone to social *desirability effects*" (Gershuny, 2011, 4). The time conception that influences this research method refers to a single linear temporal model of activities, the industrial time model. For example, commuting to work is coded as a single activity without

considering the possibility that this trip is also a time where we can think about work and to tasks to be carried out in the day, etc. This model does not provide the possibility of a secondary activity and it does not reflect the time actually experienced by actors. There is a "lack of detail" and that could create potential measurement errors (Rouch, 2006, 108-109).

Diary-based estimates

Other time-use measurement methodologies reintroduce the method of observation on chronology of events by using "diary-based estimates". Paper and pencil (P&P) diaries were the earliest and are still the most commonly used approach in diary research (Bolger, Davis, Rafaeli, 2003, 593). Participants have to hold a diary usually during an entire 24-hour period of two (one week day and one weekend day), five or seven days. They are "asked to recall a specific weekday or a weekend day, and how they spent the time since midnight of that day, sequentially" (Juster, Ono, et al., 2003, 23). They report their principal activities and also others simultaneous secondary activities. In some cases, respondents are asked what were the feelings experienced during the activities, who was present during the activities, where the activities occurred, etc. (Rouch, 2006). This method provides "very detailed record of activities throughout the day" but it is not "error-free" (Kan, Pudney, 2007, 3). Diary-based estimates are "less prone to systematic distortion" than stylized estimates but respondents may record or *recall error* in completing the diaries. Furthermore, time-use diaries are useful to measure regular activities with little day-to-day variation (sleeping, eating,…) but with only one diary day it is impossible to get a precise picture for activities with big *day-to-day variations* (home maintenance, attending meetings,…) (Glorieux, Minnen, 2009, 318). Indeed, the activity pattern may depending on the day, month and season of observation and vary also between different positions on life course. Furthermore "the days selected for diary-keeping may, by chance, be unrepresentative of normal activity" (Kan, Pudney, 2007, 3). So, the more diary days, such as a "7 a-day diary", the more accurate time estimates and the lower the level of measurement error. "The longer periods of observation offer better prospects for analyses, especially for the study of rhythms and activity patterns which typically follow cycles of multi-day duration, and which are part of daily life" (Glorieux, Minnen, 2009, 317). On the opposite, for some authors that question costs and benefits of time sampling methodologies (Gershuny, 2011), keeping a diary during longer period of observation is a kind of *burdensome activity* for respondents which may cause fatigue or diminished motivation and leads to a deterioration of the quality of the data. So this method is sometimes accompanied by long intensive general questionnaire to clarify some inconsistencies.

Computer-assisted personal interviewing (CAPI methodology)

Over the last decade, electronic data collection methods which use phone or "computer-aided techniques" appear. Recently, online time use surveys are more use. There is new way to collect

the data that use software usable on multiple devices and platforms (MOTUS). It captures activity at the precise moment when the activity is realized. Researchers have developed methods called "experiential sampling method" (ESM) that begin to address the limitations of simple P&P diaries. Respondents are led to report their current activities and affective states on an electronic page at random instants or at fixed intervals through the day for several days when a signal beeps. Participants immediately respond to a series of very detailed questions about experience at that specific moment (Juster, Ono, et al., 2003, 23). The general purpose of the ESM is to capture people's behaviors and feelings, in other words the subjective experiences of persons as they occur in real-time. The advantages of ESM are that recall problems and desirability effects are avoided thanks to immediate response required. Furthermore, because only current event are reported, reference period effects are also avoided. Respondent's report in their own words their subjective states in addition to the circumstances decreasing the activity inclusiveness issues. However, this methodology is *intrusive into life* and due to the *discontinuity of observation* it is very difficult to estimate the "total elapsed time in activities for individuals" (Gershuny, 2011). Another disadvantage pointed out by Gershuny (2011) is the *loss of the comprehension of sequential context* about things that happened before or after the current activity. Furthermore, there are also problems of sample's selectivity with methods that use phone and computer. How many people have access to a computer? Is the people who have access are representative of the whole population?

Continuous observation method

Finally, next to these statistical approach which divide reality into categories, there is a fourth method based on "continuous observation" (Gershuny, 2011). This ethnographic methodology explores realities as experienced by actors in situation sometimes with the help of cameras (Marie-Therese Letablier). It could be a complementary knowledge instrument to statistical analysis. The advantage is the deep exploration of the subjective time allocation but it can also be considered as very intrusive. This method could be very expensive and take a lot of time.

In the next part, we are going to present the three research instruments that we use in this project and the main international critics.

Critics of research instruments on labour force and working times

These methodologies have been translated into different research instruments to capture use of time in professional and domestic sphere. We will focus on three current instruments related to labour force characteristics and working times in Belgium. The Labour Force Survey (LFS) is the main source that produces information on and measures of labour force characteristics and working time. However, especially with respect to the latter, there are two other sources that generate relevant statistics, namely Time-Use Surveys (TUS) and the Work Grid (WG). All three data sources

are under supervision of EUROSTAT and, for Belgium, generated by the Statistics Belgium (FPS Economy). In this section we will provide further information on these data sources and of the quality of these instruments (international consensus on quality, reliability and validity measures; strength and weaknesses).

For this project, it is important to study the differences between the methods and the effects of using different methodologies on the results. We will focus on time, work, family,… conceptions that influence these research methods and the way they capture and measure social times characteristics and its transformations. What type of information is collected? How the instruments can measure and confirm trends that have been identified in the literature (24hours society, gender inequality, etc.)? Do categories used have sense and help to understand time allocation? Do they inform well or imperfectly about what work is and what is not? Could this kind of survey report social change and daily life? We assume that, depending on which instructions given to interviewers related to a certain kind of methodology, the results can be different. We argue that the more people have an accurate picture of their work, the less the gap between the instruments is big. Inversely, the less people have an accurate picture of their work, the bigger the gap will be. Each survey instruments has its own methodology, strengths and weaknesses, which we will elucidate in this subsection.

Labour force survey

Survey methodology

The Labour Force Survey (LFS) is generally considered as the "golden standard" to capture labour force characteristics and working times. This survey is the European equivalent of the Current Population Survey (CPS) in the United States of America and is generally considered as a very rich and reliable data source to study economic and social evolutions in European and many non-European countries. The LFS is obliged to all European Union member states since 1999. Besides, the LFS extends to the Schengen Area and even to part of Oceania.

The LFS is founded on a standardized and harmonized method in order to generate comparable statistics across countries on the structure and evolution of three different labour status of each member of the selected household: employment, non-occupation (unemployment/education/pension) and economic inactivity. The International Labour Organisation (ILO) is responsible for the standardized denotation of definitions and concepts. In Belgium, the first LFS was conducted in 1983 and repeated on a yearly basis providing already 30 years of data of labour force characteristics and working times. Since 2006, the structure of the LFS changed to reduce the burden on respondents: structural variables are being collected on a yearly basis and only a selection of others variables are collected on a quarterly basis. Currently, each year about 48,000 households are invited to participate to this study.

The survey is conducted on a sample of households (excluding collective households such as retirement homes, prisons, convents, orphanages,...) which lives on the national territory. It includes people away from home for short periods of time. The sample represents one or several individuals living in the same household from the age of 15 and above. People who are randomly selected are obliged to participate in the survey. The response rate for 2013 is high (95 % or 96519).

Survey design

The survey administration is done by questionnaire-based face-to-face interview. The questionnaire is mainly composed by closed questions which rely on precoded responses. Respondents are asked to recall aggregate details of their time devoted to work activity during a given reference day, week or month into precoded categories of activities. And only few open questions are relying on the own words of respondents and are going to be coded or "digitalized" later by the data punchers.

Strengths and available variables

In this subsection, we will present the strengths and most important variables of the LFS. The Labour force survey is considered as the most reliable and useful data source in order to observe the economic position of a country or society in many European and non-European countries. Its major strength is a well-designed and profound questionnaire surveying labour force characteristics (and other socio-demographic facets) which is easy to realize and not too expensive. The LFS gives a lot of information about the individual background of the respondents, on work characteristics such as the type of employment or professional status. The strength of this survey is to give us information on the following topics.

a) We can group information related to *socio-demographic variables* and other *individual background* which include sex, age, place of birth, number of years in Belgium, nationality, official and actual marital status, housing (previous and actual region of residence), care (reason to look after children and dependent person), education/training (regular and secondary education, level of education, total duration during a reference period, framework: at school/ at the workplace/…, learning abroad, method of transport), health and disabilities.
b) We also have *derived variables on household composition* of the reference person which come from the national register and are verify at the end of the reference week through an individual questionnaire. Family relationship within the household (presence of father/mother/children/spouce/etc in the same household), educational level of the father or mother and employment status of adults living in the same household, country of birth and nationality of parents, number of people in the household and age structure of the household (under 15, under 25, over 65 years), age of the youngest child, household type (family, stepfamily,…), number of employed/unemployed/inactive persons aged 15 years and above.

c) *Working and work-related activities*. This category includes information on time spent working for a paid work regardless the type of employment (temporary, permanent, student, internship, full-time/part-time) and work characteristics (professional status: private sector-Manual "blue-collar"/private sector-Non manual "white-collar"/ Public sector/ self-employed/ unpaid family helper, company structure, workplace address, years of experience, income...). "Working" includes aggregated work times usually and actually spent doing the main activity or a second activity which generate income. Respondents have to choose between different situations, those which correspond the most to their subjective professional status (has a job, pupil/student, housewife/househusband, be disabled, be unemployed, non-activity before retirement, retired, etc). We also have information on work arrangements such as hours of work required and flexibility/sovereignty/variability of working schedules and hours (working less or more than usual, reason why these hours differ: vacation/sickness/flexible hours/labour dispute/overtime/career break/maternity leave/…, atypical schedules: shift work/evening work or night work/Saturday or Sunday work). This category also includes activities doing as part of the main job (training, commuting,…) and job search activities for employed or unemployed persons (reasons: persons who want to work more or who want a job with better working conditions, kind of work searched, methods used to find job, duration of searching, etc).

<u>Conceptual and design weaknesses</u>

Nevertheless, we see in the literature that more and more scholars question the validity and reliability of this instrument to give a reliable view on working time. As we have seen in part I, this scepticism results from the risks of errors related to the stylized manner of questioning working hours. There are four main important drawbacks which show us that we cannot only rely on LFS and that a merging with other databases could be beneficial.

a) The first drawback is that respondents are either asked to *instantly recall* the actual time they spent working last week or how long they usually work on a weekly basis. This estimate question is based on the implicit assumption that a typical respondent is able to answer accurately in only few second and to recall for each day of the preceding week whether he worked or not. It also assumes that respondents are able to give an amount of hours they worked for "each day across all 7 days of the week" (Robinson, Bostrom, 1994, 12). Actually, it is difficult to remember precisely the amount of working hours over a seven days period for the past week due to the **memory decay**.
b) Secondly, even if respondents were able to recall their hours dedicated to work, some of them want probably not reveal it to the interviewer and prefer to give "**social desirable answering**". They embellish the reality and give replies they think more appreciable for the interviewer implying that they report more or less work than they actually do (Bonke, 2002, 3). Respondents were asked about their work in reference to

the societal norm of a full time contract. They think that weak time dedicated to work may be seen as laziness and "want to portray themselves as impressively as possible, either as very hardworking, or as not being too tied to the workplace" (Robinson, Bostrom, 1994, 12).

c) A third important drawback to consider is the **lack of detail and unclarity of the questions on aggregated working times.** In the table below, we have grouped different stylized "how long?" questions on aggregated working times. In this survey the questions are about a long term "usual" or a very specific "actual" weekly number of working hours in a main job, in a secondary job and the number of weekly hours spent on overtime (Gershuny, 2011).

Table I. Questionnaire information on aggregated working times
Respondents are asked about their own paid work (main job and second activity)
weekly hours actually work
weekly hours usually work
weekly hours should being worked according to the contract
weekly hours would like to work
Overtime hours per week

First, ask *how many hours do you work?* implicitly assumes that each respondent interprets and defines "work" in the same way. Despite the efforts of the International Labour Organisation trying to maintain standardized definitions of work this definition still is not always captured in the same way. Specific information on work-related activities which should be include or exclude is given by FPS Economy. Time spent travelling to and from work as well as activities which are done during work breaks such as business lunch should be excluded from the definition of work. In addition, work brought home is only recognized if it has been explicitly agreed with the employer that some work must be done at home. Even if they are given specific instructions, some respondents don't understand clearly whether or not they should include some work-related activities and are not able to compartmentalize their work time into categories (Robinson, Bostrom, 1994, 12). Working episodes are forgotten or exaggerated since work-related activities are counted as actual work (private telephone calls, rests, socializing with colleagues,…). In this project we would like to better understand the kind of activities which are include in the work hours estimated by respondents and analyze the porosity that exists between professional sphere and private sphere.

Secondly, ask information based on the measure of a *reference week* may confuse respondents. Indeed, this work time indicator helps to understand the variation between contractual work time and actual work time for a week. It is a good measure for analyzing regular activities and weekly

patterning of working times but we do not have precise information about the timing and duration of work or about the daily variability of working times (due to sickness, holidays, etc.) or on the context of work (Juster, Ono, Stafford, 2003). We have no information about when paid work is undertaken during the day and the week and no information on work or leisure simultaneity between spouses or other household members (Gershuny, 2011). The flexibility, sovereignty, and weekly patterning of working times are important characteristics of the current labour market and atypical and antisocial hours are by no means captured by simple estimates of weekly work time durations as done in the LFS (Gershuny, 2011, 12). The answers of some people tend to refer to a "normal" workweek or to contractual arrangement of worked hours with their employer (Laurijssen & Glorieux, 2012, 8). Since work patterns become more complex in contemporary society (growth of the service sector, less standardized tasks and environments, 24hour 7day economy,…), it is more difficult to capture accurate estimates of working times and to extrapolate them from a reference week which could be atypical to an all year. In conclusion, concepts of labour and working time are restricted and don't help to capture complex details of work activities and work schedules or about the timing and rhythms of work.

d) The fourth drawback is that we argue that LFS is **focused on old definition of work**. Labour force are defined as employed and unemployed people who are searching a job or are doing a career break (parental leave, …). Here, we have a description of what we understand by paid work. It is a container, a concept. Inactive persons are not including in the labour force definition. Only paid work is including in this working time concept. It does not take into account the possibility that people can dedicate their time to unpaid work and other socially useful activity or productive tasks such as household work, child care, citizen work, voluntary work or even to reproductive activities (rest, personal care,…). We do not have information on time spent for these other activity and even less for illegal paid activities such as drug deals or other undeclared work. Besides, it doesn't take into account the plurality of commitment during life through different position in the life course because it is focused on a linear course : education-work-retirement.

The ability to understand the question and to provide reliable and honest information depends on attitudes and norms which are linked to individual characteristics (age, gender, occupation, level of education, number of children,…) (Bonke, 2002). Time estimate questions refer to perception influenced by implicit or explicit work-hour arrangements between the employer and the employee; in addition the perception is not formally verified" (Robinson, Martin, Glorieux, Minnen, 2011, 46). The ability to estimate their work hours becomes a more challenging task due to the increased variation in daily hours, fewer routine hours and shorter job tenure for workers who transfer more frequently from job to job (Robinson, Chenu, Alvarez, 2002). For instance, older people are the most unrealistic and younger people are more accurate about their working hours (Bonke, 2002). In the literature we also see that men do not care so much about the number of working hours they do. They are more prone to overestimate or underestimate the duration of their working hours because they do not count all work-periods accurately. They have more flexible jobs than women who "more often have fixed working hours and more responsibilities for the family and more time

devoted to domestic work" (Bonke, 2002). The higher the estimates of working hours are, the higher the overestimation. On the contrary, people reporting only a small number of hours worked under-evaluate their contribution of this work. In this project, we will try to better understand who are those being less realistic (for instance, do the people who work more or who feel overworked overestimate their working times?).

Time-Use survey

Survey methodology

The weaknesses attributed to work estimates of the LFS can be overcome by Time-Use survey. It has been shown that the " typical labour hours data collected do not truly reflect the reality of hours contributed to paid work" (Harvey, Pentland, 2002). The methodology of time-diary as used in Time-Use Surveys (TUS) provide an alternative and more constructive method to capture working time duration and other social activities which are less institutionalized than paid work (household activities, leisure,…). Whereas EUROSTAT and the ILO monitor the standardised format of the LFS, EUROSTAT has drafted guidelines for Time-Use Surveys (Harmonised European Time Use Surveys) in the same way. The aim of this is to ensure that each European country "use the same methodology and follow a number of guidelines, so that the results can be compared at an international level" (Glorieux, Vandeweyer, 2003).

Data collection for the first Belgian Time use survey was conducted in 1999 by Statistics Belgium (FPS Economy) on a sample of among 4275 households that consisted of 8382 individuals. Another similar study was conducted in 2005 on 6400 Belgian from 3474 household (Glorieux, Minnen, van Tienoven, 2008). The respondents' number for 2013 was about 5683. The survey was conducted on a three sampled level: household, individual and also days are sampled. Every member of a household, which completed the household budgets survey and was aged 10 or above, was also asked to cooperate with the time use survey by keeping a detailed record of their time use (Glorieux, Vandeweyer, 2003).

Survey design

Data were collected by means of three methods: 1) a self-reports in an open-ended diary for adults (aged 15 years or older) and child (aged 10 to 14 years) randomly chosen from each sampled household, 2) an individual questionnaire for respondents between 10-17 and for those older than 18, 3) an household questionnaire for the member who best know the financial situation of the household.

Respondents are asked to report activities they did in their own words for one whole weekday and one whole weekend day between 4 a.m. on the day determined in advance by the researcher until 4 a.m. on the following day. Thanks to that, we could get a picture on the whole 24 hours of an entire day. This diary method requires that respondents register their activities instantly for each

10-minutes time intervals or periods of the day. This short recall period gives us the actual duration they did. After completing the time diary, some additional questions are asked. "The activities that were recorded were substantialy coded in accordance with the Eurostat guidelines" (Glorieux, Vandeweyer, 2003).

Activity variables

The open-ended nature of time diary and the fact that no cues is given about which activities the interviewer might be interested in allows to collect "new and unanticipated activities (for example, use of new communications technologies)" (Robinson, Bostrom, 1994, 12-13).

Time-use survey gives a more complete picture of time allocation by focusing on all activities (work or non-work) rather than simply on employment time as Labour Force Survey do. Thanks to that, we have more information on *time dedicated to various activities* during the day (time spent for labour, time spent on household work and participation in leisure activities). Activities are recoded and recombined by the analyst in ten main topics which correspond to the HETUS' activity coding list. "The activity code can be easily adapted to include new or additional code categories of interest to various researchers" (Robinson, Bostrom, 1994, 14).

Table II. Kind of activities (coding list from HETUS[1])
Personal care
Employment
Study
Household and Family care
Voluntary work and meetings
Social life and entertainment
Sports and outdoor activities
Hobbies and computing
Mass media
Travel

[1] See MOTUS and TOR classification ; flemish sample 1999-2004-2013 => Not the same coding list.

Personal care activities include sleeping, being sick in bed, time spent eating and drinking (breakfast, lunch, dinner,…). In the questionnaire we also have information on eating habits: the day(s) of the week when the respondent was eating alone, the location where respondent had eaten during the reference week (at home, at work/school, at the restaurant) and the assessment of cooking's activity (ready-to-use food). In the diary we also have information on time dedicated to other personal cares (brushing teeth, changing clothes, taking a shower,…) or health-related (taking medicines), self-care and private activities (sexual activities).

The category of *employment activities* includes time spent working for a main or second paid job. It also includes working overtime, training during work hours, help partner/family member as part of his work, travelling during or outside working hours, time spent for short rest periods at the workplace (coffee or tea breaks) and job search activities. Lunch break is not integrated into the measure of working time due to the fact that people can do different things during their lunch breaks (shopping, see friends,…) but it is considered as an activity related to employment. We have a lot of detail in Time Use Diary and we can add together different element to have one definition of paid work, one general concept. Here, the concept of work is a black boxs.

Educational activities include taking classes (language, computer, cooking courses,…), short breaks at school/college/university, study for an exam or doing homework. It does not include time spent studying during working hours but well during free times.

Household and family care activities. Household activities include time spent caring for child or adult for the respondent's own household. It is the more detailed category. It include all activities in connection with food management and preparation whether or not reported as done for another person of the household; home and garden maintenance (cleaning dwelling, tidy up,…), making and care for textile (laundry, ironing,…), pet care, repair, decoration and renovation, household management (filling out paperwork, pay bills, do shopping list,…). Time spent doing activities to care for or help any child or adult in the household, is also classified here (providing physical care to a member of the household, playing with children, assistance with homework, providing medical care; and dropping off, picking up). Activities doing in the presence of a child are not automatically classified as a childcare activity. For instance, "watching television with my child" is coded as a leisure activity. This category also includes purchases of consumer goods (shopping, buying food, clothes, furniture, etc) commercial and administrative services (visiting bank, post office, municipality authorities, police station, etc) and time spent purchasing personal services provided by someone else (visiting a doctor, visit to a hair salons, nail salons, etc.).

Organizational, civilian and religious activities are classified as voluntary work. This category captures times spent working for or through an organization, association (as a scout leader, sport coach or referee, etc). It includes informal help given by the respondents to other households (in childcare, constructions and repairs,…). Participating in meetings and religious activities (visiting church, attending in religious ceremonies such as wedding, personal religious practices such as praying,…) are also coded as voluntary work. We also found other participatory activities such as voting, donating blood, etc.

Social life and entertainment includes socializing activities (talking, face-to-face social communications) with family members except children which is coded as "playing and talking with child" in the "Household and Family care activities" category. Visit and receive visitors such as friends at home or in their home and participate to celebrations are also considered as socializing's activity. Phone calls and text messages, except those in connection with job, institutions or shops, are included in social life category. It includes all cultural and entertainment activities done as spectator or listener (watching movies in cinema, opera, concert, museums/ borrowing books or using internet in the library/ attending a sport event/ leisure parks, bars, etc.). In this category we also find time out such as doing nothing, reflecting or thinking, resting or relaxing and smoking. In the questionnaire we have information about the rhythm of cultural activities (going to cinema more than once a week). That gives us an idea on regularity or variability of these activities during a week, a month or a year.

Sports and outdoor activities includes active participation in physical exercise such as walking and hiking, jogging and running, cycling, ball games, gymnastics and fitness, etc. It also include productive exercise (hunting, fishing,etc.) and other activities related to sports and physical exercise (to pick a horse). Here again, the questionnaire inform us about the regularity or variability of sport activities during a week, a month or a year (swimming more than once a week).

In *hobbies and computing* category, we find activities connected to arts (painting, photography, sculpture, singing, acting, playing music instrument, etc.), collecting (stamps, coins, etc.), writing and reading personal letters or literary texts. Using a computer or the internet for personal interest is also mentioned as hobby (seeking and reading information, watching movies or listening radio by means of a computer, reading and sending e-mail messages, chatting on internet, etc.). It includes games (playing alone with toys, lottery, parlour games, computer games, etc.). In questionnaires, we have information about the feeling to have enough free time or leisure or on the opposite about the feeling to be rushed, under pressure and run out of time.

A specific category is created for activities connected to *mass media*. It includes reading periodicals, newspapers, books, advertisements, watching television, video or DVD and listening to radio (music, news, etc.) and to record audio files.

The last category is related to *travel*. It includes movements between two localities which have another purpose than physical exercise like jogging or walking the dog. Travel to or from work, travel related to study, to shopping and services, to childcare, to other household care, to voluntary work and meetings, to social life, to other leisure or to changing locality. In the questionnaire we have specific information about the transport mode and the possession of a driving license.

Finally, we have a residual category which includes activities related to the Time Use survey itself and ambiguous activities that could not be coded.

<u>Strengths</u>

The main strength of the time diaries is that we have information on several *parameters of time*:

a) First, it gives us the **temporal location** of the activity (when do activities take place?). We have information on the moment of the day when the diary was filled in. We can answer to the following question: Does the respondents work early or late ? Is it night work ? Sunday work ?
b) This makes it possible to capture human behavior and activities (especially work) as they naturally occur in daily life. That is the **sequential structure** (In what order the events take place?). Full daily context of work experience is recorded. We have data "on activities preceding work or following it at the end of the work day" resulting in "more complete and systematic reports" on the way peoples structure their everyday life (Robinson, Bostrom, 1994, 13; Bonke, 2005, 2). We can evaluate how different other activities are arranged around paid work and the succession between activity (useful to analyse the length of work breaks).
c) We also have information on the **timing** of the activity during the day or the week, or the rate of recurrence (how often do the activity takes place?). This allows us to understand the acceleration or deceleration, frequencies, regularity or variations in the sequences of activities (Rouch, 2006, 111). For instance, "we can identify the precise distributions of work starting and stopping times and the lengths of work breaks" (Gershuny, 2011, 13) and evaluate if it is the same or variable schedule everyday.
d) The TUS also derive their strength from a sequential, activity-based registration method, including the **temporal context** in which main or secondary activities are embedded. For each activity, respondents can register other activities they are doing simultaneously and are asked to note the duration of parallel or secondary activities. Respondents note the location of *where* the activities took place (at home, at friends' home, at workplace, in a car, on a bus,…), mention *with-whom* they were (alone, partner, parent, etc.) and *when* these activities were carried out during the day. We can find information on what one of the spouse is doing for instance during the working time of other spouse.
e) Finally, for each respondent, we can aggregate time spent for specific activity to have an overview on the total **duration** (how long ?) spent on this activity during two days rather than during a typical week (e.g. hours spent sleeping or working; one duration for activities spent with someone else). In this way, we have more accurate information on the duration of working time than LFS. That provide "generalizable national estimates of the full range of daily activities: from contracted time (work or the commute to work), to committed time (family care), to personal care (sleeping, eating, hygiene), and to all the types of activities that occur in free time" (Robinson, Bostrom, 1994, 14).

Furthermore, we have additional questions and questionnaires give us information on the unusually or ordinary dimension of the day, on the feeling of being rushed or not during the activity, on the use of computer and internet during the activities and on travel. It is important to ask question on the use of internet during the activity because most of the time people do not realize that they use internet in the same time. That allows us to clarify inconsistencies and areas of possible shadows in the diary (Rouch, 2006). In the questionnaires we have information, on the regularity of some

activities (I wake up always at the same time) and the respondent's assessment about this regularity. We have information on amount of time estimated for each activities during the week and the weekend (household work, childcare, personal care, education and training, social life, etc.) and on the satisfaction and assessment with life, work, place of residence, on health, on social relations, etc. With those information we can examine the variation of well-being between people (for instance, the link between work patterns and work-satisfaction). For respondents between 10-17 years old we have information about the organization and planning of their times (think in advance to what we do tomorrow or next week). Finally, in the household questionnaire, we have information on the possession of equipment goods (car, wash machine, computer, etc.), on the income (wages, pensions, unemployment allowance, etc.) and on the type and frequency of care for children under 15 (family, friends, babysitter, nursery, etc.).

The gap between stylized and diary-based estimates

In the literature, scholars compare time-use information from diaries with similar information from questionnaires and show the advantages of having a very detailed record of activities with diaries. As we have seen, in Time-Use survey there are different methods used (questionnaire and diary). Questionnaire methods have the same weaknesses as estimate-question from LFS. We are not going to repeat the weaknesses we have pointed out for questionnaire method. In this section we are going to focus on 2days-diary in comparison to LFS questionnaire and to time-use questionnaire.

Time-diary approach is considered as alternative to the time-estimate approach. We have seen in the previous section that "respondents are not asked to make complex, vague, or subjective calculations" but simply to recall of their activities sequentially for a specific period of time and according to their natural temporal order (Robinson, Martin, Glorieux, Minnen, 2011, 44). The memory decay and overestimations are partially ruled out due to a much shorter period of recall and instantaneous registration of activities (Robinson, Martin, Glorieux, Minnen, 2011, 44). That is more reliable and accurate for measuring time spent working or time spent for housework than retrospective diaries or than the questionnaires we have in time-use survey or in LFS (Bonke, 2005, 5).

Number of authors shows the *gap* or the differences that exist between stylized and diary-based estimates, between declared and actual number of hours. Generally, respondents estimate longer period of time spend on an activity in questionnaire that they inventory in time-diaries. Whereas diary respondents "tend to report fewer hours at work per day or week than respondents to time-estimate questions" (Robinson, Martin, Glorieux, Minnen, 2011, 44). For instance, "when asked to estimate their number of work hours, employed respondents tend to overestimate their work hours by 5-10 percent in relation to the work hours they report in their time diaries" (Robinson, Martin, Glorieux, Minnen, 2011). The gap between what people reported in questionnaire and what they report in diaries becomes bigger the more people work. It is argued that the greater the estimate, the larger is the gap between the two approches. There is the same trend when respondent are asked estimate question about "a number of different nonwork daily activities, like housework and

sleep" (Robinson, Martin, Glorieux, Minnen, 2011, 45). Stylized estimates of those activities exceed diary estimates because they are more clearly indicated in the diaries. The gap vary systematically depending on who report and on respondents' characteristics (gender, age, type of employment, presence of dependent children, amount and irregularity of housework hours,…) or on type of employment (e.g. service occupations in which work schedules are more irregular). Some of them have an accurate view on their working time or on their time dedicated to household work and are able to give more correct estimates. Whereas others give less accurate information because they have, for instance the feeling to be overworked, to have a more busy life or they have fewer benchmarks to use. For instance, even when they watch television at night, some people are still thinks "I should not forget to do that and that". The more in your mind you are busy with work, although you are not working, the more you think you are actually working. But if we try to let them report that in a diary it is less than they actually believed they work. For those individuals, diary-method could be more adapted. The question is who are those people?

It is also argued that the more flexibility people have in their work, the larger the difference becomes. The more people have a less formalized work which allows them to work at any time and everywhere, the bigger the gap will be. It is the opposite with people who are very instrumental to their work, and know exactly this work and this is not. Diary information a priori might be more reliable measuring the amount of time devoted to this kind of work" (Bonke, 2010, 10).

There is no strong evidence of a gender bias in the measurement of work or household work but it appears in the literature that the gap between men and women differs from one country to another. In certain country where women tend to have shorter workweeks (part-time, unemployment) than men it is argued that they underestimate their work hours. They "still considered themselves unemployed or did not take fully into account the hours they were outting in, perhaps because their work schedule was irregular or unpredictable" (Robinson, Martin, Glorieux, Minnen, 2011, 51). Their housework activities are blended together, making it almost impossible to get an accurate count of hours spent for each activities.

On the opposite, other scholars think that women know exactly when they started to work and when they stopped because they know for instance that they have to put their children before their work to kinder garden and that they have to pick them up in the afternoon. For them, they work "normal hours" in a fixed schedule. They are embedded to different time at this position and can figured out in the survey question much better what are their actual time devoted to work. For those authors, mothers under/over-reporting less than fathers who are likely to feel the pressure to do more housework and/or over-report their housework contributions (Bonke, 2005, 11-12). A third hypothesis in the literature argues that people estimated longer workweeks, especially for women, seem to overestimate time spent at work because they feel "overworked during hours when other workers are enjoying their time off from work" (Robinson, Martin, Glorieux, Minnen, 2011, 52)

Respondents' characteristics, attitudes and norms influence information given in both questionnaires (LFS or TUS) which often "reveal roughly similar patterns of variation between

different groups" (Kan, Pudney, 2007, 5). The structure of diary "leaves out this kind of measurement errors" (Bonke, 2005, 4).

Conceptual and design weaknesses

Nevertheless, diary method is not error-free and not without its own problems (Robinson, Martin, Glorieux, Minnen, 2011, 44). We will present in this section four important drawbacks of two-days-diary method.

a) Even if analysis of diary-based estimates are considered as more reliable and less prone to systematic distortion than stylized estimates, **recording or measurement errors** could be still present when completing the diaries (Bonke, 2005, 2). When they fill in the diaries, respondents can still "distort, embellish or even lie outright about what they do" (Robinson, Martin, Glorieux, Minnen, 2011, 44). They may even substitute a habitual activity with another and change what actually took place.
b) The **short observation period** of only two days could also be considered as a drawback. With only two single days of observation it may be possible that the days randomly sampled for "diary-keeping may, by chance, be unrepresentative of normal activity" (Kan and Pudney, 2007, 3). The day influences the quality of the information depending if it is a typical weekday/weekend day or atypical one. Even if those days were representative of normal activity it is nearly impossible to get a precise picture of day-to-day intra-personal variations over longer spans (Glorieux, Minnen, 2009). Some activity pattern may vary depending on the day of observation, the month, season of the year and even throughout the whole lifespan (Kan, Pudney, 2007). Time-diaries are useful to measure only regular activity such as sleeping, eating,… which have a little day-to-day variation and which follow a daily rhythm. For comparison with stylized time use estimates which is based on a reference week, we can construct "synthetic weeks" for groups of respondents by "adding together equal proportions of Monday diaries, Tuesday diaries, (and so forth), and weekend diaries to estimate work hours across the week" (Robinson, Bostrom, 1994, 15). Nevertheless, it would be better to use "diary-based time use estimates derived from weekly rather than daily records to improve comparability and reduce purely random variation" (Kan, Pudney, 2007, 6). According to Glorieux and Minnen (2009, 317-318), it is better to have more diary days because it offer more accurate and stable time estimates than shorter diaries do. Also, "the longer the observation, the lower the level of measurement error" (Glorieux, Minnen, 2009, 322). These estimates allow "more detailed analyses on specific activities for specific social categories" and study of "rhythms and activity patterns which typically follow cycles of multi-day duration, and which are part of daily life" (Glorieux, Minnen, 2009, 318).
c) This necessity leads us to another drawback pointed out by some authors. It is argued that longer period of registration will reinforce the **registration burden** that also characterized two-days diary. Diary-keeping is more expensive than questionnaire for gathering overall time-use information (Bonke, 2005, 6). Moreover, it is time-costly. It demands a "fair amount of time and effort from both the interviewer and the respondent" because of

intensive preparations (printing documents, training interviewers, coding) and of the paper-and-pencil procedure (Robinson, Martin, Glorieux, Minnen, 2011, 44). Evenmore, with longer diary days, respondents could feel fatigue and that could create a deterioration of interviewer's motivation. That could negatively affect the response rate and the quality of diary-keeping" (Glorieux, Minnen, 2009, 319). Some authors think that the longer respondents have to keep a diary, the more the number of activities declines and the poorer the quality of these data.

d) A last important drawback is the **unclarity and confusion between activities and codes.** In fact, respondents do not record their activities in the same way and similar type of activities can carried out in different contexts. It is difficult to know how to record certain activities in the diary. There is no clear definition or instruction about different activities. For instance, in the case of paid work, some workers report personal business (such as paying bills, private telephone calls), socializing (as in taking off early with colleagues or clients to go to a restaurant or bar), rests or attending to the mass media during scheduled work hours simply as work, while other workers report it as household work, social life or Tv viewing (Robinson, Bostrom, 1994, 14).

Weekly Work Grid

Survey methodology and design

We have seen that the housework tasks and job tenure become more variable than previously and more difficult to estimate. To compensate for the former issue and develop a method that would "help workers to recall their work hours more systematically and accurately" (Robinson, Chenu, Alvarez, 2002, 45), the Time Use Survey has included the Work Grid in their surveys.

Each respondent aged 18 years old who was defined as a jobholder (employee, self-employed person, family worker) in the TUS samples also fill WG. The respondents' number for 2013 is 2825. The aim of this light diary structured as a week-calendar divided in 7 days is to get an overview on whole working week and to get the complexity of hours worked.

The timing of all paid work activities for a full week is recorded. It gives us a view on a larger period. Respondents have to record for each day the exact times they began work, for how long and at what time they ended work (Robinson, Martin, Glorieux, Minnen, 2011, 45). A line has to be drawing for each 15-minutes time intervals in case of time spent working. The respondant has to report the date and if he did not work on a particular day. The first day of this light diary should be the same as for first two-day diary.

The reporting task is more manageable on this "per day" basis rather than when asking respondents to recall events over the entire 168 hours of the week (Robinson, Chenu, Alvarez, 2002, 48).

Strengths and available variables

While Time-use diary is limited to only two days, the strengths of the WG is to keep a record on only one activity (work) on a whole week. Respondents must classify this working week as a usual or unusual one. This method is based on short recall period and is the easiest way for registering actual working times. It is the best method to improve the workweek measure and the easiest way for registering actual working times. This method can help to make the definition of actual work time more explicit:

- Including overtime work, work brought and done at home from a paid job

- part-time, second jobs or one-off jobs which are however small. For example, a paid job for a friend or childminding. Self-employment and time spent working for a family business should also be included

- time spent commuting to and from work, major episodes of non-work or unpaid breaks such as lunch breaks must not be included

WG leaves out some work-related activities and provides a better insight in the duration (6 worked hours on the first day, 8 on the third,…) but also on the timing of weekly working hours for a whole week (3 hours worked between 10 to 12 on the first day, 3 at night). We can identify the "various different daily patterns, with short, long, broken, evening and night work" (Gershuny, 2011, 13). We can identify the lengths of work times and work breaks because we know precisely when work episodes start and stop during the day and week.

It provides "particularly enlightening insights into the lives of workers in the same household such as certain married couples (Robinson, Chenu, Alvarez, 2002, 54). We can easily compare if the members have the same work schedule per day or week or if not. In this way, we can question the issue of synchronization and desynchronization of dual-earner couples schedules and rhythms in daily life.

Weaknesses

Even if this method is more detailed and more reliable to measure the activity of work, it presents severe constraints on the type of research that can be done. Time-use data are poorer because they are prone to measurement error bias but give wider research scope (Kan, Pudney, 2007, 4).

An important drawback of Work Grid method is that ***only working respondents*** from TUS could fill in the calendar. Such as in the LFS, WG leaves out people who are not considered as workers (e.g. those who have less than 18 years old are automatically not include). It does not take into account people who dedicate their time to other activity than work. We do not have information on time spent for these other activities. We cannot question time spend together for members who do

not work or time spend with children. In other words, work grids are inadequate for some groups who are not included but for other groups (e.g. those who have difficulties to know exactly when they start and stop working) it is more adequate.

We only have the timing of paid work activities. We can evaluate the dispersion of paid work (if the respondent worked full time, 60%, 50% or fewer during the week) but we have no information on if they work more or less in other occasion, on the reason why people did not work during this week while they should work or on the location of work. There is a ***lack of detail or precision on paid work activities***. Even though there is evidence that work grids have many advantages for measuring hours spent in paid work, especially for workers in irregular and atypical forms of employment, these surveys tend to treat paid work activities as a "black box". Respondents have to record whether they work or not, and to specify eventual breaks. This measure of work include, without distinction, short breaks and social events that took place during the workday. It is possible that respondents declare they work while they dedicate time to household's demands during their scheduled work time and fail to subtract this to their working hours. Furthermore, when respondents draw the line, it is possible that they go beyond the exact time they start or end work. We do not know exactly what respondents really do when they declare they were working or where they were and with who. We do not have information on multitasking during work (phone calls, use of internet, read a book,…).

ANNEX II. Visualize the differences between the methods

	Labour force survey	**Time-use diaries** **(+ questionnaires)**	**Work grid**
Design	• Face-to-face questionnaire • Closed questions and precoded responses • Respondents aged 15-64	• Self-administred diary • Open-ended • Respondents aged 10 and above	• Calendar • Self-registration • Respondents aged 18-64
Time measure	• Reference/typical week, day or month • Estimate time duration • Instantly recall	• 2-days registration (from 4 to 4) • Actual time duration aggregated • Instantaneous registration (each 10-min intervals)	• 7-days (from 00 to 00) • Actual time duration • Each 15-min intervals
Strengths	• Individual background • Labour force characteristics • Work arrangement • Large sample (but quite simple survey administration)	• Work embedded in other activities (multitasking) • Temporal order and context • Short recall period • + satisfaction, time pressure, health, ...	• Weekly working hours • Temporal order : duration + timing • Short recall period • Explicit definition of work
Weaknesses	• Memory decay • Social desirable answering • Unclarity and lack of detail on working times • Old definition of work ⇨ Risk of overestimation	• Recording or measurement errors • Short observation period (only 2-days) • Registration burden • Unclear activities' definition	• Only work • Lack of detail on the context of work

APPENDIX B: LFS&TIME WORKING PAPER 2

Validity: Measuring work

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Introduction

Labour is more than a means for economic support (Morse and Weiss 1955, Elchardus and Glorieux 1989, Glorieux 1995). It gives a feeling of being 'tied into the larger society', of having a purpose (Morse and Weiss 1955, Jahoda, Lazarsfeld et al. 1972, Glorieux 1995). To many, work is one of the central organizing structures in life. It is therefore hardly surprising that work is so intensively investigated. However, there are many ways to skin a cat and this somewhat trite saying seems to be very true for the measurement of hours worked. Previous research shows that some methods seem to be more accurate than others and, in addition, not every method is equally time consuming (Scheuch 1972, Gershuny 2000). In order to measure working hours, it is 1) crucial to understand how work is defined by researchers and perceived by respondents (i.e. the reliability of measuring work) and 2) crucial to understand how to get the same results for working time estimates when using different methods inquiring the same concept (i.e. the validity of measuring work).

This working paper addresses the latter issue by investigating three common methods that all have proven their inestimable value. As there are: 1) the Labour Force Survey (LFS), 2) the weekly Work Grid (WG), and 3) the Time Use Survey (TUS). The LFS is a household survey specifically designed to measure the dynamics of employment and unemployment in a country (Eurostat 2016). The WG is not a stand-alone method but, in this case, came with the TUS. A subsample of the respondents of the LFS also partook in the TUS (and, if employed, the WG). In the TUS respondents kept a time diary for one weekday and one weekend day in which they registered all daily activities in 10-minute timeslots. In the WG they only recorded if they have worked and this in 15-minute timeslots. In the WG work is registered within the temporal framework of 7 consecutive days on the basis of a separate schedule and a predefined understanding of what labour implies (Lesnard and Kan 2011). The main contribution of the WG as an add-on to the TUS, hence, is the insight on the time spent on paid work on a *weekly* basis. In this respect it is argued that the WG better overcomes the variation of the daily time spent on work (Robinson, Chenu et al. 2002, Lesnard and Kan 2011, Minnen and Glorieux 2011). At every turn, the LFS, WG and TUS were conducted for the same reference week

The goal of this research paper is to investigate the validity of these three methods, that is, to what extent do their estimations of working hours differ. Research of Gershuny and Robinson (2013) and Otterbach and Sousa-Poza (2010) show that the more detailed a research method is, the greater the reliability of the estimate of the weekly working time (see also Robinson and

Bostrom 1994, Otterbach and Sousa-Poza 2010, Robinson, Martin et al. 2011). This implies that the most accurate method for measuring working time would be the TUS. This is a very detailed method in which respondents register work as being embedded within all their activities, which arguably will lead to more accurate figures. However, the two-day registration approach of the TUS is less suited to overcome variation of the daily time spent on work. Therefor, the seven days registration method of the WG would be the next most reliable method and, in this line of reasoning, the LFS comes last, simply because a question on hours worked is likely to be prone to social desirable answering (or norm adherence) and memory decay.

In what follows we will investigate this reasoning of decreasing reliability related to these three different methods in a backwards approach. First, we compare the weekly estimated working hours of the WG and the LFS. This will be done on the individual level. Secondly, we compare the daily estimated working hours of the TUS with the concurring days from the WG, both at the individual level as well as at the episode level. The latter comparison, at the episode level, is of great importance because it allows identifying the misconceptions of the definition of work. In the light of the results, we will evaluate and recommend on the use of all three methods.

"If there were neither the names of days nor the weeks, we should be liable to be lost in an endless series of days – as grey as fog – and confuse one day with another" - Sorokin (1943)

Measuring work: *What can we add?*

The LFS is more or less considered to be the 'golden standard' for inquiring international comparable estimates of working hours. The LFS uses the same concepts definitions and the same set of characteristics in each country, as well as common classifications (NACE, ISCO, ISCED, NUTS) and is formatter by international guidelines (Eurostat 2016). Furthermore, the LFS excels in the amount of work related background information of respondents. Is this method than a panaceum for measuring work?

To a large extent it probably is. The studying work includes more than only knowing how many hours of work have been performed. Elements of the dispersion of different contracts, different type of occupations, reasons for part-time work, and so on are of equal importance. This working paper by no means questions the usefulness of the LFS. However, when it comes to measuring working hours, we have some reservations. Stylised estimate questions are typically prone to norm adherence and memory decay. When we ask a respondent '*How many hours did you work last week?'* it is not unlikely that working hours are under- or overestimated. Moreover, chances are likely that respondents report their contractual hours out of convenience. Furthermore, the argument goes that working times are more and more weekly patterned in the current labour market and working days are becoming less and less the same. By no means this flexibility or

variability can be easily captured by a simple question on weekly work time durations as done in the LFS.

These remarks were also mentioned by Gershuny and Robinson (2013) and Otterbach and Sousa-Poza (2010). Their research shows that the more detailed a research method, the greater the reliability of the estimate of the weekly working time. Gershuny and Robinson (2013) argue an increase in the variation in the weekly workweek generally causes the unwanted side effect of respondents overestimating their working hours in the Labour Force Survey. The authors suggest that in that case, the respondents do not give enough attention to the time they *have not* worked. In addition, this effect is assumed to increase when the working time increases.

Since many scholars assume that working patterns to a large extent are repeated within the cycle of a week (Gasparini 1993, Elchardus 1996, Glorieux, Koelet et al. 2006, Cloïn, Schols et al. 2010), charting the weekly time spent on work in a correct and accurate way therefore seems more appropriate (Gershuny 2000, Robinson, Chenu et al. 2002, Harvey, Gershuny et al. 2003, Afsa and Biscourp 2004, Minnen and Glorieux 2011, Gershuny 2012). Against this background, EUROSTAT and the HETUS working group acknowledged the need to chart working time patterns for at least 7 consecutive days and therefore they have developed the weekly Work Grid (Rydenstam and Wadeskog 1998, European Commission 2004, European Commission 2008) to go aside the recommended two-day TUS.

Data and Method

About LFS&TIME

This working paper is a part of the project LFS&TIME. The goal of this project is to merge data from the Labour Force Survey (LFS), the Work Grid (WG) and Time-Use Survey (TUS) and use the strengths of this merged database to make inferences over economic parameters that relate to working time estimates and working time characteristics on the one hand and to study social issues on the other hand. The fieldwork period of the Belgium TUS and the WG ran from January 2013 until February 2014. They were conducted by Statistics Belgium (AD Statistics) from the Belgium Federal Department of Economic studies (FOD Economie) amongst a subsample of the LFS. When taking the WG as point of reference and selecting respondents aged 18-64 years that have registered work on at least one 15-minute timeslot in de WG, our final sample includes 2,785 respondents that have filled in the Labour Force Survey, the Work Grid and the Time-Use Diary.

The strength of the created database is that the independent datasets can be merged at different levels, that is, the individual level (e.g. to compare individual answers on working time estimates form the LFS, the TUS and the WG), the episode level (e.g. to compare timing of working hours in the TUS and the WG), and the household level (e.g. to compare intra-household allocation of time). In this paper we will make a comparison on individual level (for LFS and WG) and on the

episode level (WG and TUS). First, though, we will explain how the different datasets measure work.

Measuring work in the Labour Force Survey

The Labour Force Survey (LFS) is conducted among Belgium households. The survey is comparable at European level and describes the size, structure and evolution of employment and unemployment. Furthermore, the LFS also offers, among other things, more knowledge about part-time employment and the different types of temporary labour, job characteristics and contractual and actual working hours for main and second job (Eurostat 2016). In this working paper we use the following variables to measure work:

a) Q20 Number of hours worked for main activity during the reference week
b) Q26 Number of hours worked for main activity according to contract
c) Q28 Number of hours worked for secondary activity during the reference week

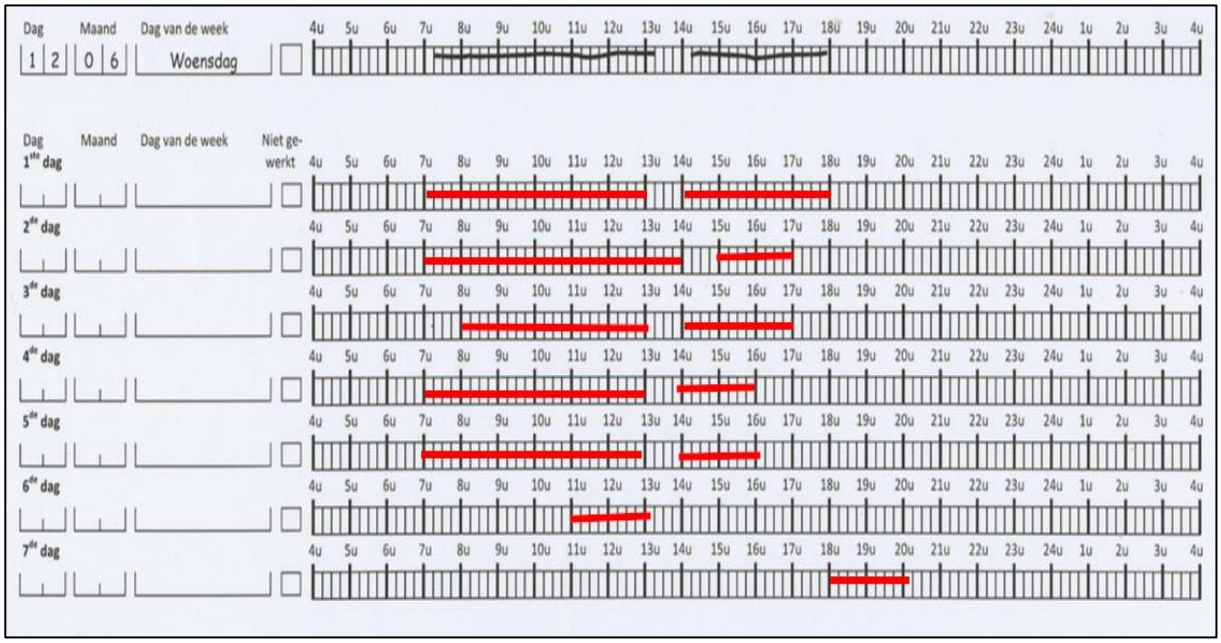
Measuring work in the Work Grid

The Work Grid (Figure 1) is part of the EUROSTAT guidelines for time use surveys and these data are collected by a large number of Member States. The Work Grid is used to register working time and therefore only completed by those who do paid work or unpaid work in a family business. Respondents that fill in their Work Grid for the reference week corresponding to the week in which they have filled in their time diary (TUS). For example, a respondent that is asked to fill in a time-diary on Thursday and a Saturday, starts the registration week of the Work Grid on the Monday of the same week and ends the registration week an a Sunday.

Respondents get a predefinition of work stating that they have to register all 1) paid work for the main occupation, 2) paid work for a secondary occupation and 3) unpaid work in a family business. Unpaid (lunch) breaks and transport to and from work need to be excluded (FOD Economie – Statistics Belgium 1999; 2005).

The format of the Work Grid consists of one clear form where all the days of the week have a separate time grid, divided into 96 time frames of 15 minutes (Figure 1). With a horizontal line, the respondents have to colour the timeslots of that they worked. Employed respondents that have not worked during the reference week (due to for example holidays or days called in sick) had to explicitly indicate this with a 'cross' on the form.

Figure 1. Example of the Work Grid



Measuring work in the Belgium Time Use Survey (TUS)

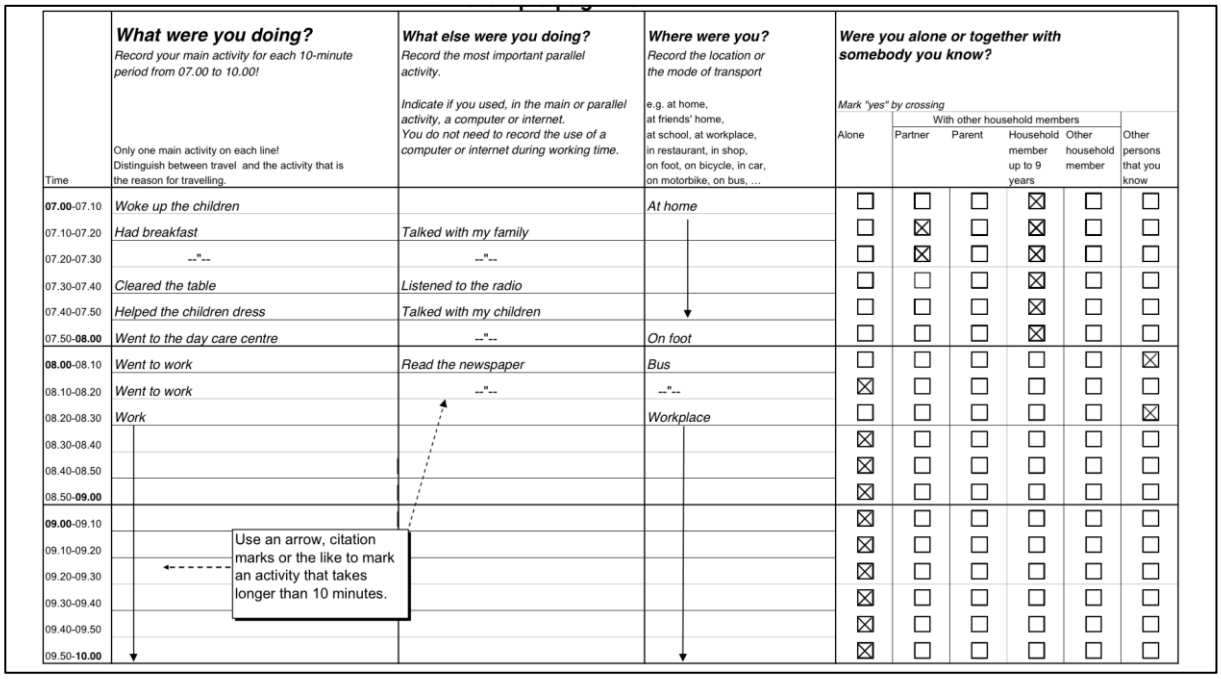
The GD Statistics of the FPS Economy collected the data of the Belgian TUS. Fieldwork ran from January 2013 until February 2014. Complete data were collected from 5.559 respondents, aged 10 years and older, living in 2,744 households for both the TUS and the LFS. As mentioned, of this sample 2,785 respondents also filled in the WG. In the TUS data are collected by means of a time-diary and an individual drop-off questionnaire. The respondents wrote down their time use in own wording in the diary for one whole weekday and one whole weekend day in 10-minute timeslots. Respondents noted their main activity as well as any subsidiary activities and any people who were present when this activity was carried out. Any travel and modes of transportation were also indicted (Figure 2).

In the TUS 'paid work' can be captured on the basis of a set of detailed activities (regarding paid work). Instead of the Work Grid, were respondents 'encoded' their own answers, a coder translates in the TUS the answers of the respondents in certain codes (Huysmans 2001: 177; Chenu 2004: 296). The most important task to prepare the comparison between the Work Grid and the TUS is to make a common definition of 'paid work'. We therefor combine different activities of the diary.

The codes that we use come from the coding list of the GD Statistics of the FPS Economy and imply the following activities:

a) Regular professional activity
b) Self-employed additional activity
c) Paid overtime
d) Other time related to paid work

Figure 2. An example of a diary page from the Time Use Survey



The level of equation

In this validations study we investigate whether we get the same results for working time estimates when using the different methods ascribed above that inquire the same concept. In order to achieve this we apply two levels of merging. We compared the individual working time estimates of the LFS and the WG on the one hand, and the episodic concordance of working times in the TUS and the WG. To merge the WG with the individual LFS database the WG had to be aggregated to the individual level, taking into account the division of days into weekdays and weekend days. The TUS inquires the use of time in 10-minute intervals whereas the WG inquires the use of (working) time in 15-minute intervals. To merge the TUS and WG at the episode level, both databases had to be converted into the lowest common denominator (i.e. 5-minute intervals). Additionally, from the WG only the weekday and weekend day that concur with the weekday and weekend day in the TUS had to be selected.

Results

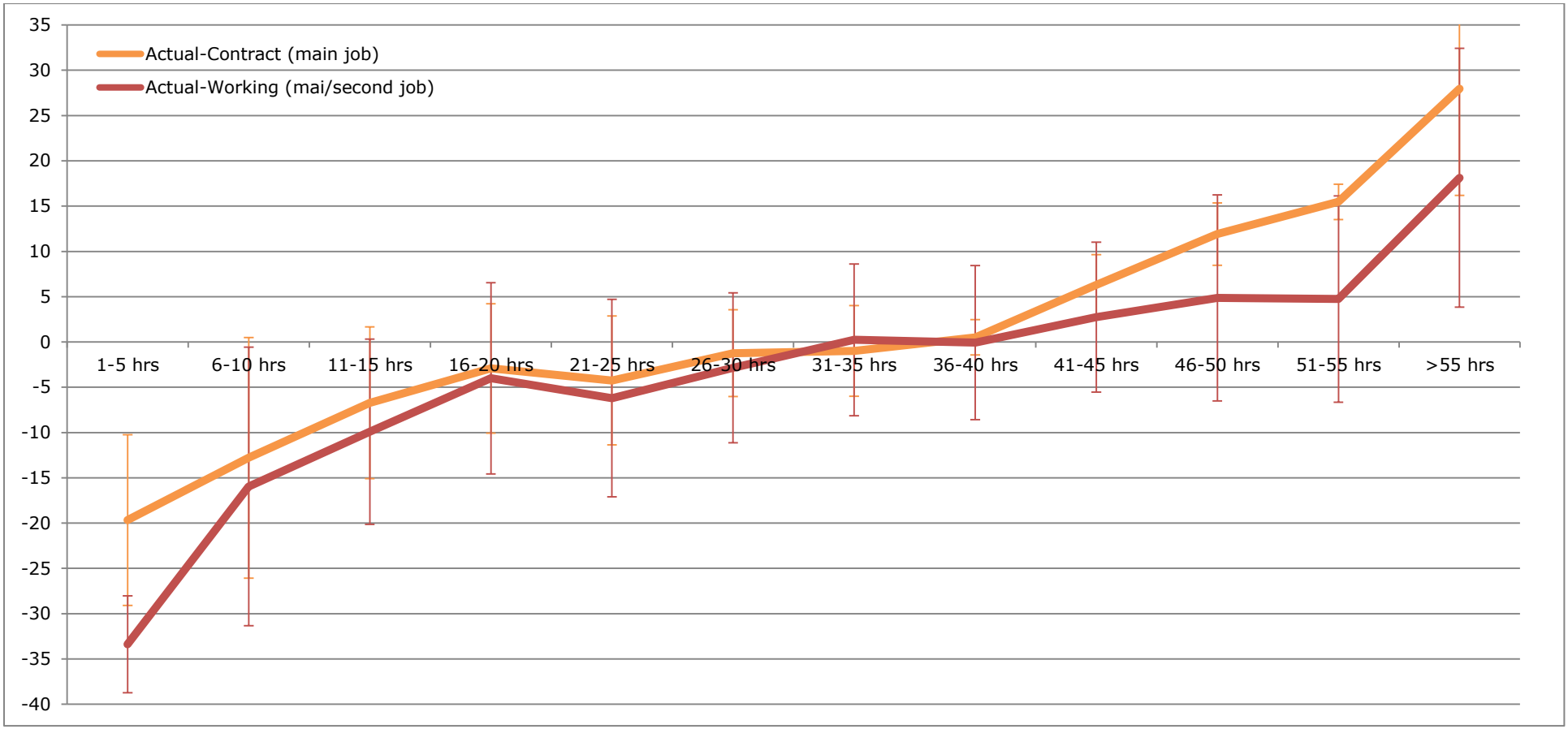
WG and LFS: a comparison on individual level

In this section we compared the individual working time estimates of the LFS and the WG. We make the comparison twice: first for a selection of people that have contractual working hours (>0 and <40), that indicated that their workweek was normal, and that worked at least 1 hour during the registration week. .

In Figure 3 we categorised respondents based on the hours that they have actually worked according to the LFS. The vertical axis represents the difference in hours between 1) the amount of hours that the respondents have actually worked according to the LFS in the reference week on the one hand and the hours according to their contract (LFS) on the other hand (yellow line) and 2) worked hours in the main and second job of the LFS and the work hours in the WG (red line). Thus, if someone says in LFS that he or she works more than his contractual hours, the yellow line will lie above the origin of the graph. Likewise, if someone's actual working hours in the LFS exceed his actual working hours in the WG, the red line will lie above the origin of the graph.

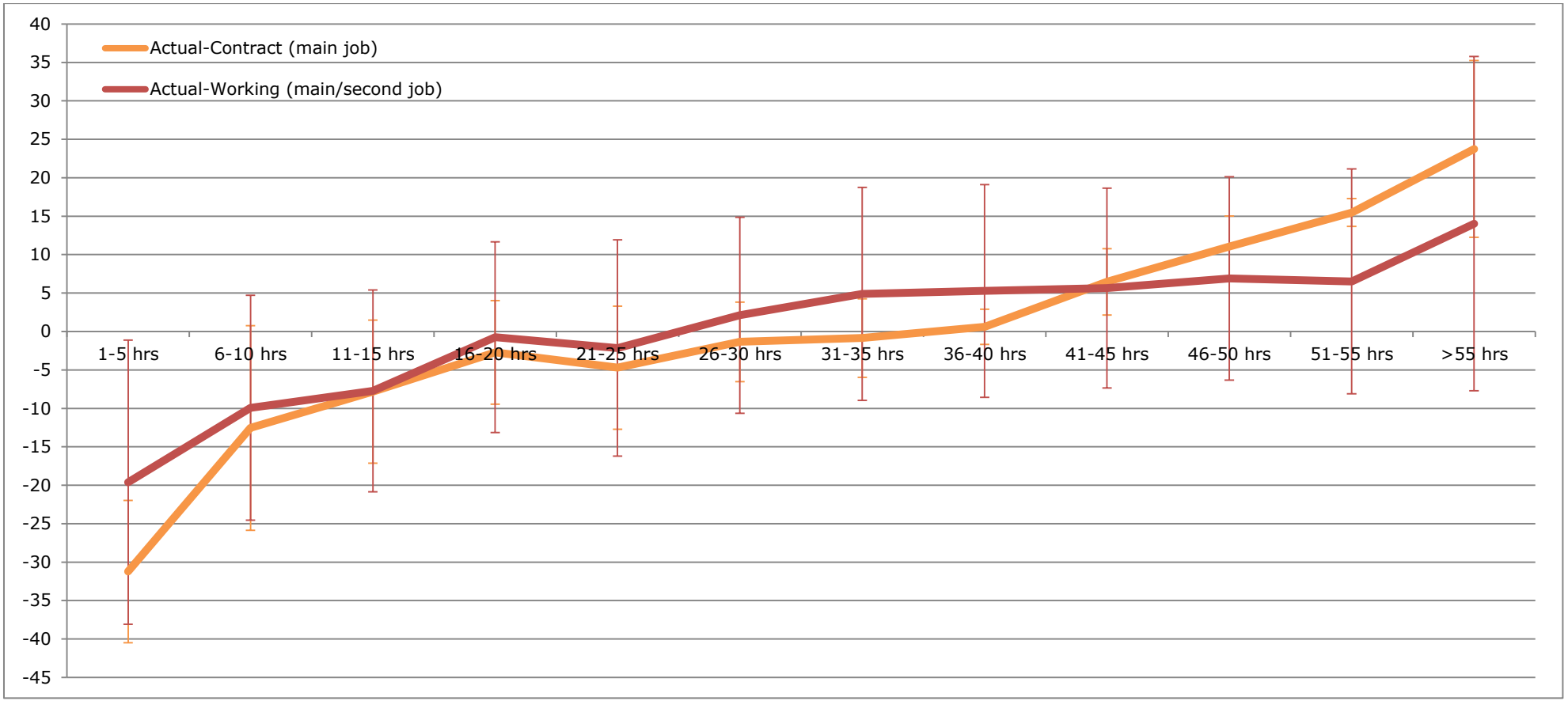
We first look at the yellow line; this is the line that represents the differences within the LFS. In fact, people that work 16 to 40 hours per week say are fairly accurate in estimating their working hours according to the LFS (yellow line) and according to the WG (red line). However, people that say in the LFS that they work less than 16 hours per week tend to underestimate their working hours. On the contrary, people that say in the LFS that they work more than 40 hours per week tend to overestimate their working hours. This finding corresponds to pervious findings of Gershuny and Robinson (2013) that argue that when the working time increases this generally causes the unwanted side effect that respondents overestimate their working hours in the Labour Force Survey.

Figure 3. Comparison LFS and WG for contractual hours >0 or ≤40



Note: selection: working hours >0; normal workweek n=1,331

Figure 4. Comparison LFS and WG



Note: including not normal week and self-employed; n=2,599

For the second selection, findings are represented in Figure 4. The vertical axis and the horizontal axis are the same as figure 4. The yellow line more or less follows the same pattern as in Figure 3. However, we see now that if we include self-employed and people for whom the workweek was unusual, overestimation of working hours (e.g. the red line climbing above the origin of the graph) already starts for those who said in the LFS to have worked 25 hours or more. Hence, we might conclude that the unusual workweeks (which holds for almost have the sample) make estimated working hours in a questionnaire unreliable.

Work Grid and the TUS: a comparison on episode level

In this section we take a closer look at the episodic concordance of working times in the TUS and the WG. The TUS is a method where respondents record their diary for one weekday and one weekend day. Although the TUS is too limited (only two days) to fully identify the variations in the working week of an individual (Rydenstam and Wadeskog 1998: 55), it provides very detailed information on the daily behaviour of the respondents. Therefor, we compare these two days registered within TUS with the two corresponding days from the WG.

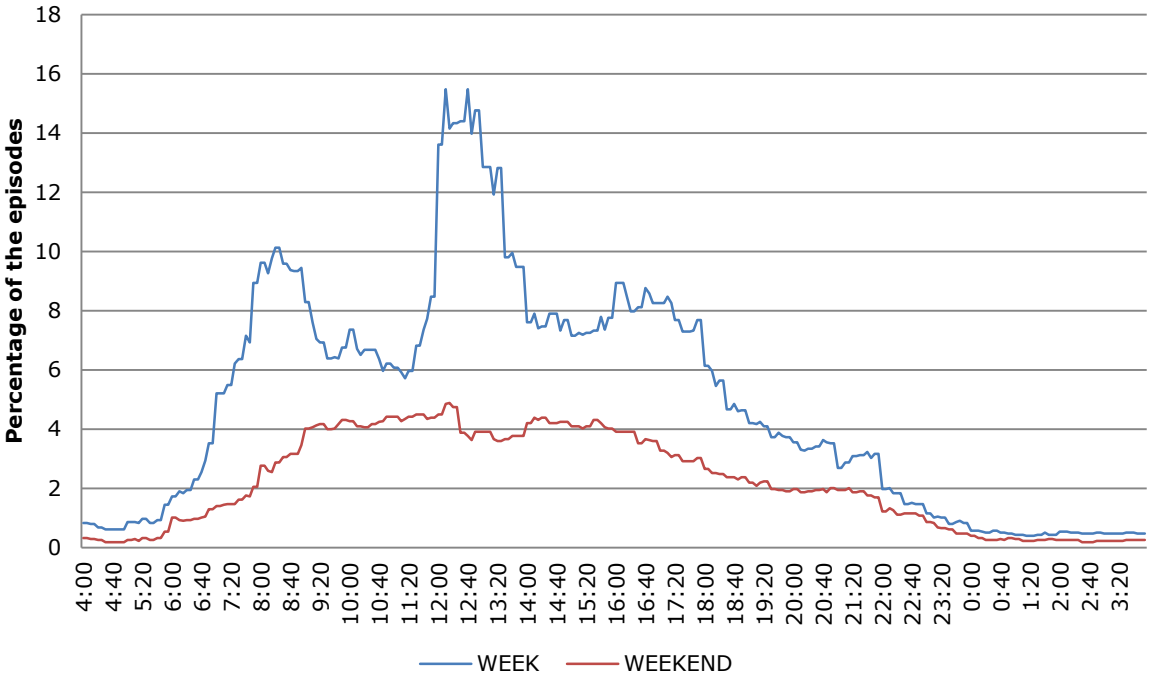
Firstly, we compare the TUS and the WG on the basis of 'work' and 'non work'. Table 1 presents the percentage of episodes that 'match' and that do 'not match'. To be short, when a respondent indicates in his or her diary that he works or does not work at a certain moment in time and this is equivalent with what is registered in the WG at the same moment in time (at an accuracy of 5 minutes), than there is a 'match'. For the whole week we find a match of 96.4% and a mismatch of 3.6%. In Weekdays this mismatch is a bit higher (4.9%) than on weekend days (2.3%). Overall we can conclude that only a small percentage of the WG does not match with the TUS. In a next step we will take a closer look on what time of the day this mismatch is the highest.

Table 1. Comparison of WG and TUS on episode level

Work Grid	Time-use diary	Percentage	
WEEKDAY			
Did not work	Did not work	74,8%	
Did work	Did work	20,3%	
MATCH			95,1%
Did not work	Did work	2,0%	
Did work	Did not work	2,9%	
MISMATCH			4,9%
WEEKENDDAY			
Did not work	Did not work	94,3%	
Did work	Did work	3,5%	
MATCH			97,8%
Did not work	Did work	1,2%	
Did work	Did not work	1,1%	
MISMATCH			2,3%
WEEK			
Did not work	Did not work	84,5%	
Did work	Did work	11,9%	
MATCH			96,4%
Did not work	Did work	1,6%	
Did work	Did not work	2,0%	
MISMATCH			3,6%

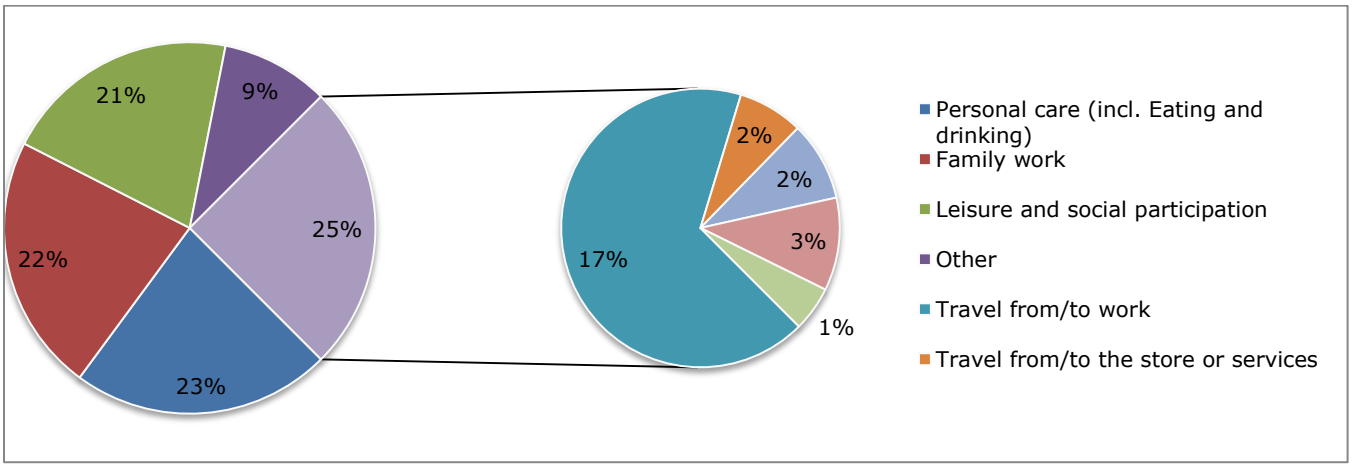
When we equate the episodes in the TUS and the WG and compare the weekday completed in the TUS with the corresponding weekday in the WG with respect to the timing of the 'mismatches' (blue line in Figure 5), we find that the mismatches are the highest around noon. Subsequently, we find a peek of mismatches in the morning and the evening. For a weekend day we see that the mismatches are lower and more spread over the day (red line in Figure 2). The peeks suggest that the mismatches are due to travel counted as work, lunch counted as work and unpaid work counted as work. In a next step we will check this assumptions.

Figure 5. Timing of MISMATCH on episode level between WG and TUS



The extensive list of activities in the TUS gives us the ability to take a closer look on the mismatches between the WG and the TUS, that is, investigating what respondents were actually doing in the TUS when they registered work in the WG. Figure 6 underlines the above assumption that it is mostly lunch breaks (23% personal care including eating and drinking) and traveling from/to work (17%) that are the cause of the mismatches. Next to these two activities we also see that family work (22%) and leisure and social participation (21%) are accountable for the inconsistencies between the TUS and the WG.

Figure 6. MISMATCH by activities in TUS when WG activity is 'WORK'



Conclusion

In this working paper we questioned the validity of the LFS by comparing it to the more accurate WG and we questioned the validity of the WG by comparing it to the more accurate TUS. This comparison has been facilitated by the LFS&TIME database that combines these three surveys that are conducted among the same respondents and cover the same registration week.

Our findings show that the WG results in better working time estimates than the LFS because of its registration method. Employees that estimate their weekly actual hours in the LFS to be greater than 25 hours per week tend to overestimate their weekly actual hours in the LFS in comparison to the WG. We argue this to be the result of the 'irregularity' of the workweek or higher day-to-day variability, because, if selected respondents that indicated their workweek to be normal, this overestimation starts from working 40 hours per week. This finding corresponds to pervious findings of Gershuny and Robinson (2013) that argue that when the working time increases this generally causes the unwanted side effect that respondents overestimate their working hours in the LFS.

Using the TUS we pointed out that the WG is not completely infallible, because 'mistakes' are made when work-related (but nonetheless non-work) activities, like lunch breaks or travel time, are still registered as work the WG. On weekdays this mismatch is slightly higher (4.9%) than on weekend days (2.3%). However, overall we can conclude that only a small percentage of the WG does not match with the TUS.

However, the WG truly adds to the accuracy of estimated working hours compared to the LFS. Besides, the registration burden for respondents of keeping a WG is relatively low, as are the costs of imputing additional data next to the LFS. We therefore strongly recommend that the WG becomes an integral part of the LFS. The WG much more than the LFS takes into account the daily variability of work and with little effort from both interviewer and respondent more valid results can be obtained wit respect to estimating working hours..

Bibliography

Afsa, C. and P. Biscourp (2004). "L'évolution des rythmes de travail entre 1995 et 2001: quel impact des 35 heures ?" Economie et Statistique **376**(1): 173-198.

Cloïn, M., et al. (2010). Tijd op orde? Een analyse van de tijdsorde vanuit het perspectief van de burger. Den Haag, Sociaal en Cultureel Planbureau.

Commission, E. (2004). Guidelines on Harmonised European Time Use Surveys. Luxembourg, European Commission, EUROSTAT.

Commission, E. (2008). Guidelines on Harmonised European Time Use Surveys Luxembourg, European Commission, EUROSTAT.

Elchardus, M. (1996). De gemobiliseerde samenleving. Tussen de oude en een nieuwe ordening van de tijd. Brussel, Koning Boudewijnstichting.

Elchardus, M. and I. Glorieux (1989). "De ontwrichting van het levensritme." Mens en maatschappij **64**(2): 115-139.

Eurostat (2016). "Description of the dataset." Retrieved 19-02-2016, from http://ec.europa.eu/eurostat/web/microdata/european-union-labour-force-survey.

Gasparini, G. (1993). Working Time in Western Societies - An Overview. 10th Annual Conference of the Association for the Social Studies of Time (ASSET). Dartington Hall, Dartington, Devon, UK.

Gershuny, J. (2000). Changing times: work and leisure in postindustrial society. Oxford, Oxford University Press.

Gershuny, J. (2012). "Too Many Zeros: A Method for Estimating Long-term Time-Use from Short Diaries." Annales d'Economie en de Statistique **105/106**: 247-270.

Gershuny, J. and J. P. Robinson (2013). Workweek Estimate-Diary Differences and Regression to the Mean. Unpublished manuscript, University of Oxford**:** 23.

Glorieux, I. (1995). "Arbeid als zingever." Een onderzoek naar de betekenis van arbeid in het leven van mannen en vrouwen. Brussel, VUBPress.

Glorieux, I., et al. (2006). De 24 uur van Vlaanderen. Het dagelijkse leven van minuut tot minuut. Tielt, Lannoocampus.

Harvey, A. S., et al. (2003). Statistics on Working Time Arrangements Based on Time-Use Survey Data. Geneva, Switzerland, International Labour Office.

Jahoda, M., et al. (1972). "Marienthal." The Sociography of an Unemployed Community. London: Tavistock Publications.

Lesnard, L. and M. Y. Kan (2011). "Investigating scheduling of work: a two-stage optimal matching analysis of workdays and workweeks." Journal of the Royal Statistical Society: Series A (Statistics in Society) **174**(2): 349-368.

Minnen, J. and I. Glorieux (2011). Two days a week? A comparison of the quality of time-use data from 2-day, 7-day diaries and a weekly work grid. Time Use Observatory. J. A. Carrasco, S. Jara-Diaz and M. Munizaga. Santiago de Chili, Grafica LOM**:** 105-118.

Minnen, J. and I. Glorieux (2011). "Two days a week?–A comparison of the quality of time-use data from 2-day, 7-day diaries and a weekly work grid." Carrasco, JA, Jara-Diaz, S. and M. Munizaga (Eds.), Time use observatory, Grafica LOM, Santiago de Chile: 105-118.

Morse, N. C. and R. S. Weiss (1955). "The function and meaning of work and the job." American Sociological Review: 191-198.

Otterbach, S. and A. Sousa-Poza (2010). "How Accurate are German Work-time Data? A Comparison of Time-diary Reports and Stylized Estimates." Social Indicators Research **97**(3): 325-339.

Robinson, J. P. and A. Bostrom (1994). "The overestimated workweek? What time diary measures suggest." Monthly Labor Review **117**(8): 11-23.

Robinson, J. P., et al. (2002). "Measuring the complexity of hours at work: the weekly work grid." Monthly Lab. Rev. **125**: 44.

Robinson, J. P., et al. (2002). "Measuring the Complexity of Hours at Work: The Weekly Work Grid." Monthly Labor Review **124**(4): 44-54.

Robinson, J. P., et al. (2011). "The overestimated workweek revisited." Monthly Labor Review **134**(6): 43-53.

Rydenstam, K. and A. Wadeskog (1998). Evaluation of the European Time Use Pilot Survey. Luxembourg, EUROSTAT.

Scheuch, E. K. (1972). The Time-Budget Interview. The Use of Time. A. Szalai. The Hague, Mouton**:** 69-88.

Sorokin, P. A. (1943). Sociocultural Causality, Space, Time. New York, Russell & Russell.

APPENDIX C: LFS&TIME WORKING PAPER 3

Validity: Part-time work patterns

*De Korte, K., J. Deyaert, I. Glorieux, E. Meszaros, J. Minnen & T.P. van Tienoven**

*Authors in alphabetical order; all authors contributed equally to this working paper

Introduction

(Adapted from Minnen, Glorieux & Van Tienoven, 2015). Working fulltime, especially if this holds for both partners, often conflicts with and complicates childcare arrangements (Presser, 2005). Whereas, for example, the United Sates leaves childcare largely to the market or to informal care, and whereas, for example, Scandinavian coun- tries highly subsidize childcare facilities, in other countries, solutions arise in terms of working time arrangements like part-time work. The Netherlands is such a country that is highly characterised by female labour market participation through part-time employment (Bosch et al., 2010). In 2013, in the Netherlands, 77% of the female employed is working part time, whereas in Sweden, for example, this percentage is much lower (37.7%). Belgium falls somewhere in between with 42.5% of the female workforce working part time in 2013 (figures from the Policy Research Centre Work and Social Economy, www.steunpuntwse.be).

The Netherlands, thus, lends itself well to study (the mechanisms of) part-time work. Bosch et al. (2010) report stability in average working hours of women over cohorts from 1925 to 1987 in the Netherlands despite the increase in women's educational attainment. They conclude that even though many studies emphasize the negative aspects of part-time work (see, e.g. Connolly and Gregory, 2008), this stability at least may be part of individual or household strategies (see, e.g. Hägerstrand, 1975). In fact, the presence of children and a full-time working male spouse increases the probability for the female spouse to work part time, and this 'state of affairs' results in a higher life satisfaction for both men and women (Booth and Van Ours, 2009, 2013). The same holds for satisfaction with working hours. Booth and Van Ours (2013) calculated the equilibrium weekly work- ing hours to be 21 for women and 32 for men. However, the authors also found that for job satisfaction, no such relationship existed, hinting that 'occupational downgrading' of women is a serious issue. Connolly and Gregory (2008) report one-quarter of women who switch to part-time work to work at lower qualification than their previous job.

However, meeting childcare demands might not only be the sole reason to work part-time. Health issues, reducing end-of-career workload, or simply a job that only comes with a part-

time contract, are also important reasons for people to work part-time. The Labour Force Survey (LFS) questions these reasons in fairly good detail (see Figure 1). It is, however, astonishing, that the question of how these different reasons for part-time work result in weekly part-time work schedules is not addressed in the LFS. The only further indication of part-time work in the LFS is the expression of part-time work as a percentage of a full time equivalent (see Figure 2). Nonetheless, there might be several different solutions of part-time work that relate to the reasons for part-time work addressed here above. For example, parents with school going children typically take the Wednesday afternoon off because schools in Belgium are closed. An often-heard part-time workweek of older people exists of 4/5th with Friday off.

In this working paper we demonstrate that by extending the LFS with a simple, low burdensome Work Grid (WG) allows to identify the different patterning of (part-time) work in function of the reasons for not working fulltime as questioned in the LFS.

19a. Wat is de <u>belangrijkste reden</u> om deeltijds te werken? (ENQ. Niet suggereren – Omcirkel de code die overeenkomt met het spontane antwoord van de respondent - Slechts 1 enkel antwoord mogelijk)	

Figure 1: Investigating reasons for part-time work in the LFS

18. Wat is de omvang van de deeltijdse betrekking, uitgedrukt als percentage van een voltijdse betrekking? - (ENQ. Noteer het percentage) ..... I___I___I	19a

Figure 2: Investigating part-time work in the LFS

Data & Method

We will use the WG and the LFS data. The WG requests employed respondents to indicate their seven-day work episodes by drawing a line from the starting time to the ending time of each work episode. In order to do so, for every day of the week, the WWG provides a grid of 96 15-min time slots and the instructions hold that respondents exclude (meal) breaks and travelling time (see Figure 3). We withheld only those respondents (18 to 75 years) who

have reported to be employed in the questionnaire and who reported at least one hour of work in the WWG. This brings the sample size to 2316 respondents.

Figure 3: Example of the WG

We use two dimensions of paid work to typify weekly work patterns. The first dimension is the number of hours worked, which indicates the continuum of part-time through full-time work (i.e., 40 h/week) to overwork (i.e., extended workweek). The second dimension is the percentage of work performed on non-standard periods, which we define as weekend work (i.e., work performed on weekend days from 6 a.m. till 7 p.m.), evening work (i.e., work performed all days from 7 p.m. till 10 p.m.) and night work (i.e., work performed on all days from 10 p.m. till 6 a.m. the next day). The 'standard workweek pattern' has to meet the standard of both dimensions, that is, contain about 40 h of paid work and the least percentage of work performed on non-standard working periods.

We will further analyse the identified weekly work patterns in terms of *gender*, *age*, *education*, family situation, age of youngest child, statute, and sector of employment.

Optimal matching

(Adapted from Minnen, Glorieux & Van Tienoven, 2015). The main purpose of OMA is to discover patterns in individual sequences of events by com- paring each individual sequence with all other sequences in terms of the number of 'operations' needed to equalize two sequences. These operations consist of 'inserting' an event, 'deleting' an event or 'substituting' an event, and different operations concerning different events are assigned different 'costs'. The cost-setting of these operations is, although often based on theoretical grounds, largely arbitrary. Nevertheless, in the end, this makes OMA an optimization problem, namely, computing the minimal ('optimal') costs needed to 'match' an individual sequence with all other sequences. The result of OMA, then, is a matrix containing the costs or 'distances' between all sequences, which, in turn, can be reduced by a clustering method in order to aggregate sequences for which mutual distances are low and for which distances from the other sequences are high.

Since the WWG9905 consists of 96 episodes a day or 672 episodes a week starting on Monday at midnight and with the registration of only two states (i.e., work or no work), we are able to use the OM algorithm to compare the 672 episodes of each individual sequence with the homologous episodes of all other sequences. To match these sequences, we use 'Dynamic Hamming Matching', which allows only substitutions as a valid operation (Lesnard, 2004). Moreover, cost-setting for the operation is based on transition frequencies, which basically means that costs vary relative to the timing of sequences, that is, costs are made inversely proportional to transition frequencies between pairs of states at a given time as observed in the sample (Lesnard and Kan, 2011). The less two sequences resemble each other; the more operations (i.e., substitutions) are needed to make them both 'match'. Summing these substitutions will provide a measure for the dis- tance between those two sequences and OM will generate a matrix contain- ing all mutual distances of all sequences. Hereafter, we used 'Ward Hierarchical Clustering' to reduce this matrix of distances to typify the most common workweeks. Both analyses are performed with the statistical program 'R'. *(For a more detailed explanation see Appendix A in Raaijmakers et al. 2015)*.

Results

In total we identified 13 weekly work patterns of which 6 can be clearly identified as part-time work patterns (see Figure 4). The first three part-time workweek patterns are the result of having (part of) a weekday off. The last three part-time workweek patterns are mainly resulting form working less than 38 hours per week.

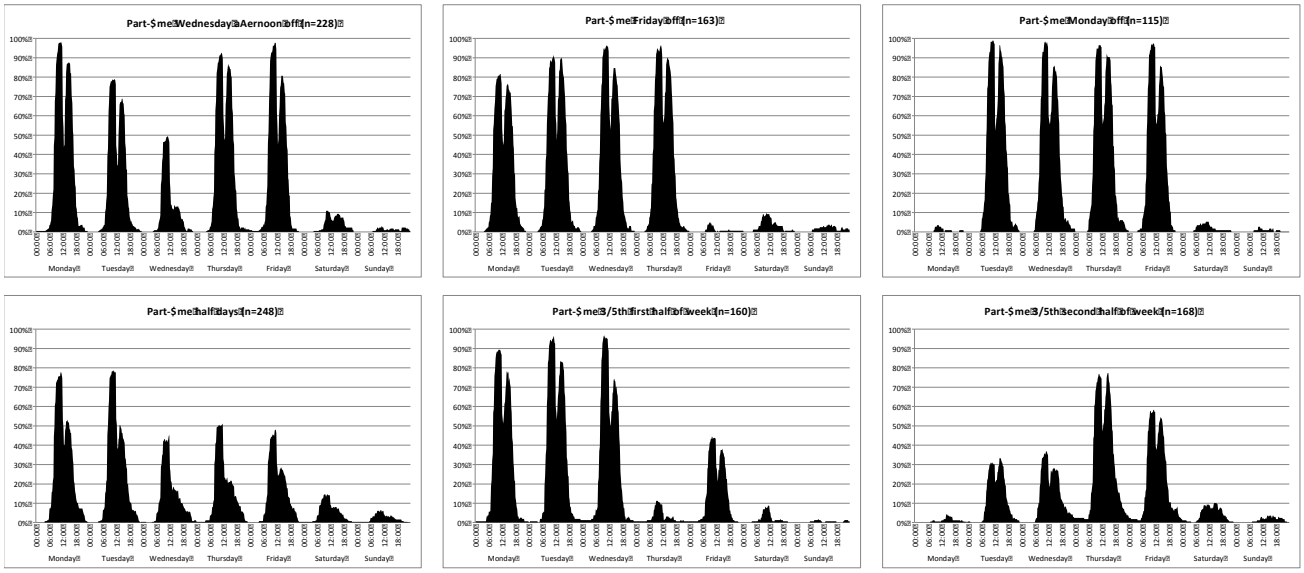


Figure 4: Different part-time workweek patterns

Standard and non-standard work

From Table 1 we derive that part-time workweek patterns are typically worked within standard working hours (i.e. weekdays between 6am and 7pm). The patterns of 'half days' and of '3/5th second half of the week' are characterized by 11-13% non-standard work, which merely takes place in the weekend.

Table 1: Dispersion of standard and non-standard work over different part-time workweek patterns

	Part-time					
	Wednesday afternoon off	Friday off	Monday off	Half days	3/5th first half of week	3/5th second half of week
Total (n)	228	163	115	248	160	168
% of total (row %)	9,8%	7,0%	5,0%	10,7%	6,9%	7,3%
Standard work [hrs]	30,7	31,3	32,1	20,8	26,5	17,4
Evening work [hrs]	*0,4*	*0,5*	*0,5*	*0,8*	*0,3*	*0,9*
Night work [hrs]	*0,2*	*0,3*	*0,1*	*0,2*	*0,4*	*0,5*
Saturday work [hrs]	*0,8*	*0,6*	*0,4*	*1,1*	*0,4*	*0,9*
Sunday work [hrs]	*0,2*	*0,3*	*0,1*	*0,5*	*0,1*	*0,3*
Non-standard work [hrs]	1,6	1,7	1,1	2,6	1,2	2,6
Total work [hrs]	**32,3**	**33,0**	**33,2**	**23,4**	**27,7**	**20,0**
Evening work [% of total work]	*1,2%*	*1,5%*	*1,5%*	*3,4%*	*1,1%*	*4,5%*
Night work [% of total work]	*0,6%*	*0,9%*	*0,3%*	*0,9%*	*1,4%*	*2,5%*
Total extended work [% of total work]	1,9%	2,4%	1,8%	4,3%	2,5%	7,0%
Saturday work [% of total work]	*2,5%*	*1,8%*	*1,2%*	*4,7%*	*1,4%*	*4,5%*
Sunday work [% of total work]	*0,6%*	*0,9%*	*0,3%*	*2,1%*	*0,4%*	*1,5%*
Total weekend work [% of total work]	3,1%	2,7%	1,5%	6,8%	1,8%	6,0%
Totat non-standard work [% of total work]	**5,0%**	**5,2%**	**3,3%**	**11,1%**	**4,3%**	**13,0%**

Table 2: Dispersion of socio-demographic characteristics over different part-time workweek patterns

	Total	Part-time					
		Wednesday afternoon off	Friday off	Monday off	Half days	3/5th first half of week	3/5th second half of week
Total (n)	2316	228	163	115	248	160	168
% of total (row %)	100,0%	9,8%	7,0%	5,0%	10,7%	6,9%	7,3%
Gender							
Men	50,6%	33,8%	53,4%	54,8%	25,4%	46,9%	40,5%
Women	49,4%	66,2%	46,6%	45,2%	74,6%	53,1%	59,5%
Age							
18-24y.	4,8%	6,6%	5,5%	4,3%	3,2%	4,4%	1,2%
25-39y.	36,6%	39,5%	31,3%	45,2%	33,5%	30,6%	36,9%
40-54y.	46,1%	47,8%	49,7%	40,0%	50,0%	47,5%	46,4%
55-64y.	12,2%	6,1%	13,5%	10,4%	12,9%	17,5%	15,5%
65-75y.	3,0%				0,4%		
76+y.	0,0%						
Obtained educational level							
Max. lower primary	2,5%	1,8%	1,2%	0,9%	6,0%	1,9%	1,2%
Max. lower secundary	10,9%	9,6%	11,7%	8,7%	17,3%	10,0%	9,5%
Max. higher secundary	36,7%	28,5%	35,0%	34,8%	36,7%	36,9%	41,1%
Max. higher education	28,1%	39,0%	25,2%	31,3%	26,2%	31,9%	34,5%
Min. university degree	21,9%	21,1%	27,0%	24,3%	13,7%	19,4%	13,7%
Family situation							
Living with parents	4,9%	6,5%	2,9%	2,9%	2,7%	4,2%	1,9%
Living alone	12,4%	9,7%	10,0%	18,3%	13,8%	7,7%	11,0%
Single parent family	5,6%	4,2%	4,3%	5,8%	6,7%	5,6%	8,4%
With partner without kids	22,1%	12,0%	33,6%	21,2%	20,4%	21,0%	25,2%
Two parent family	55,0%	67,6%	49,3%	51,9%	56,4%	61,5%	53,5%
Age of youngest child							
Living with parents	3,4%	5,4%	1,3%	0,9%	1,7%	3,8%	1,8%
No children or children older than 25y.	34,0%	23,3%	43,1%	39,6%	33,1%	28,7%	36,2%
Youngest younger than 7y.	23,7%	27,4%	22,2%	28,3%	23,3%	27,4%	18,4%
Youngest between 7y. and 25y.	38,9%	43,9%	33,3%	31,1%	41,9%	40,1%	43,6%
Statute							
Part-time	26,3%	39,9%	28,2%	14,8%	59,7%	29,4%	50,0%
Fulltime	73,7%	60,1%	71,8%	85,2%	40,3%	70,6%	50,0%
Sector							
Private laborer	19,2%	14,9%	16,6%	17,4%	23,0%	17,5%	19,0%
Private clerk	42,8%	42,1%	47,2%	50,4%	39,9%	43,1%	41,7%
Public statutory civil servant	18,6%	25,9%	19,6%	20,0%	17,3%	23,1%	23,8%
Public contractual civil servant	7,6%	8,3%	8,6%	7,8%	11,3%	8,1%	8,3%
Self-employed with/without personnel	11,2%	7,5%	8,0%	4,3%	8,1%	7,5%	6,5%
Other	0,6%	1,3%			0,4%	0,6%	0,6%

Socio-demographics

Form Table 2 we derive that having Wednesday afternoon off is mainly used by two parent families (67.6%) with young children (43.9%). Statutory civil servants in the public sector are overrepresented within this pattern. Having Friday off or working half days is more common amongst older people (around 2/3rd of the people working by these patterns is 55 year or older). Having Monday of is characteristic for people working as clerks in the private sector. The patterns of working 3/5th more or less follow the socio-demographic characteristics. Note that having Wednesday afternoon off and working half days are the pre-eminently female part-time workweek patterns. As it turns out, different needs for part-time

work (based on socio-demographic characteristics) result in different types of part-time workweeks.

Reasons for part-time work

If we look at the main reasons for part-time work as specified in the LFS but now separately for the different part-time workweek patterns, we see the above being confirmed (see Table 3). In general, taking care for children seems the main reason for part-time work, especially for having the Wednesday afternoon off. However, more nuances exist. Having Monday off is mostly the result of the job that is offered. One out of ten working half days does so because he/she cannot find fulltime employment. Friday off is typically the result of other (non childcare related) personal or family reasons.

Moreover, if investigating part-time work using the LFS only, we find that the first three patterns are all ascribed by around 70% of a FTE. Additionally, post-hoc comparisons with Bonferroni correction for multiple comparisons show that these percentages do not differ significantly from each other. However, analyzing data from the WG, reveals that the story behind these percentages is clearly different.

Table 3: Main reasons for part-time work and % of part-time work in FTE for different part-time workweek patterns

	Part-time					
	Wednesday afternoon off	Friday off	Monday off	Half days	3/5th first half of week	3/5th second half of week
Main reason for part-time work						
1. Posting before retirement	1,1%	2,2%	0,0%	0,7%	0,0%	2,4%
2. Not able to find fulltime employment	6,6%	6,5%	5,9%	**9,5%**	6,4%	6,0%
3. Switched form FT to PT for economic reasons	0,0%	0,0%	5,9%	0,7%	6,4%	0,0%
4. Another PT job completes fulltime employment	1,1%	4,3%	5,9%	2,0%	0,0%	1,2%
5. Combining work and studies	1,1%	2,2%	0,0%	1,4%	2,1%	0,0%
6. Health reasons	3,3%	8,7%	5,9%	7,4%	4,3%	2,4%
7. Job reasons (stress, harassment)	1,1%	0,0%	0,0%	0,7%	0,0%	0,0%
8. Care for children or other dependent family members	**38,5%**	**13,0%**	**17,6%**	**26,4%**	**25,5%**	**25,0%**
9. Other personal or family reasons	**26,4%**	**39,1%**	**23,5%**	**24,3%**	**31,9%**	**27,4%**
10. Does not want FT job	7,7%	2,2%	5,9%	8,8%	4,3%	3,6%
11. Other	6,6%	**13,0%**	0,0%	6,8%	4,3%	11,9%
12. Desired job is only offered PT	6,6%	8,7%	**29,4%**	**11,5%**	**14,9%**	**20,2%**
Part-time work as % of FTE	70,9%	71,8%	74,1%	56,3%	59,0%	61,1%

Conclusion

Part-time work is performed for different reasons. These reasons are related to different socio-economic backgrounds. The LFS thoroughly investigates these reasons and these background characteristics. However, the LFS forbears to investigate how these reasons and socio-demographic characteristics manifest themselves in different forms of part-time work. As simple analysis showed, investigating part-time work as a percentage of FTE is not enough. This working paper demonstrated that using data from the WG, much more in depth insides could be gained in the patterning of part-time work over the week. As researchers, we therefore recommend the inclusion of the WG in the LFS. The WG has a relatively low respondent burden as well as a relatively low economic cost to process, but the gains of understanding how work is patterned over the week. Especially if one realizes that the optimal matching analysis and clustering analysis, as conducted in this working paper, reveal that the 'traditional', 'standard' or 'normal' workweek is disappearing. Or maybe it has never existed!

Bibliography

Booth AL and Van Ours JC (2013) Part-time jobs: What women want? *Journal of Population Economics 26*: 263–283.

Bosch N, Deelen A and Euwals R (2010) Is part-time employment here to stay? Working hours of Dutch women over successive generations. *Labour 24*: 35–54.

Connolly S and Gregory M (2008) Moving down: Women's part-time work and occupational change in Britain 1991– 2001. *The Economic Journal 118*: F52–F76.

Hägerstrand T (1975) Space, time and human conditions. In: Karlquist A, Lundquist L and Snickars F (eds) Dynamic Allocation of Urban Space. Farnborough: Saxon Houses, pp. 3–13.

Lesnard L and Kan MY (2011) Investigating scheduling of work: A two-stage optimal matching analysis of workdays and workweeks. *Journal of the Royal Statistical Society 174*: 349–368.

Minnen J, Glorieux I and Van Tienoven TP (2015) Who works when? Towards a typology of weekly work patterns in Belgium. *Time & Society 30*: DOI 10.1177/0961463X15590918.

Presser H (2005) Working in a 24/7 Economy: Challenges for American Families. New York: Russell Sage Foundation.

Raaijmakers A, Ortibus E, van Tienoven TP, Vanhole C, Levtchenko E and Allegaert K (2015). Neonatal creatinemia trends as biomarker of subsequent cognitive outcome in extremely low birth weight neonates. *Early Human Development 25*: DOI 10.1016/j.earlhumdev.2015.03.008.

APPENDIX D: LFS&TIME WORKING PAPER 4

Case testing 1: Homework supervision

Fusulier, B. & A. Delporte

Introduction

Based on the suggestion of one of the members of the steering committee, we analyze the social phenomenon of homework supervision through which we can highlight the importance of this new database created by the merge of the first three (LFS, TUS and WG). We will try to highlight the different socio-demographic and professional factors that may influence how individuals involve themselves in this activity. To do so, we selected individuals who could be affected by this issue by combining various factors. Thus, our at-risk population included all individuals who had been referenced as a parent of at least one child whose age would be between 5 and 17 years; we obtained a sample of 924 individuals who may supervise a home supervision of school work of their children. Before going further in our analysis by presenting the different crosstabs, we must cross this at-risk population with the "Homework" variable we created taking into account individuals who listed a monitoring school work at home, in both main and secondary activity.

Bivariate results

As we can see in Table 1, we will work this time on a much smaller sample than in the first case testing (754), since the total population of the database "TUS volw" contains 5680 individuals, and in this case we only obtained 205 people. Given the sample size and the distribution of registered cases, we have not been able to develop an analysis distinguishing the main and secondary activities. However we have been able to build a binary logistic regression model that will allow us to identify some profiles and highlight the factors that may influence them to create big trends.

Table 1: Contingency table of doing homework supervision*gender

Tableau croisé Homework as a main or secondary activity * Geslacht

Effectif

		Geslacht		
		man	vrouw	Total
Homework as a main or secondary activity	,00	360	359	719
	1,00	49	156	205
Total		409	515	924

Based on a literature review (Francis, 2011; Bergonnier-Dupuy & Esparbès-Pistre, 2007; Cacouault-Bitaud & Francequin, 2011; Chapel & Crahay, 2009), we identified variables that could be relevant to attempt to verify certain assumptions already made in previous surveys. Thus, for the socio-demographic characteristics, we selected the variables of sex, age, education level and family situation (as the number of children in household composition, single parent or not). Regarding the professional sphere, we took into account the sector (public, private, self-employed or unemployed) and the type of contract (full-time or part-time).

We have also considered taking into account more specific variables on children, namely the age of each child as well as their gender. However, data for these variables required a particularly laborious processing work, and given the size of the population and the objective of the case testing (ie a demonstration of the importance of this new database, not to obtain results on the issue of school supervision at home in itself), we chose to leave them aside. We nevertheless underline the interest of digging these questions, for those that seek to go further in thinking about coaching school work at home.

Here we will revisit each of these variables in cross tables allowing us to highlight some preliminary characteristics that we will confront later with the results of the logistic regression model in order to identify trends that may be inferred more broadly to the population. The idea here is to establish an initial inventory of the population "supervising homework" we can refine thereafter.

Table 2: Population at risk * gender

Geslacht

		Fréquence	Pourcentage	Pourcentage valide	Pourcentage cumulé
Valide	man	409	44,3	44,3	44,3
	vrouw	515	55,7	55,7	100,0
	Total	924	100,0	100,0	

Tableau croisé Homework as a main or secondary activity * Geslacht

Effectif

		Geslacht		
		man	vrouw	Total
Homework as a main or secondary activity	,00	360	359	719
	1,00	49	156	205
Total		409	515	924

Table 2 makes one quickly realizes that if the gendered distribution within the at-risk population (924 individuals) generally follows the more general figures for the Belgian population, with a slight female overrepresentation, it's not the same when we take a look at the parents who actually supervise school work at home for their children. Indeed, we observe that there are only 24% men within these parents. Thus, women are still largely overrepresented when it comes to take care of the daily tasks involving children, at least as regards the aspect of coaching education (Bergonnier-Dupuy & Esparbès-Pistre, 2007; Tazouti, 2014).

Table 3: Population at risk * age categories

lft_weging

		Fréquence	Pourcentage	Pourcentage valide	Pourcentage cumulé
Valide	18-34 jaar	100	10,8	10,8	10,8
	35-54 jaar	806	87,2	87,2	98,1
	55-74 jaar	18	1,9	1,9	100,0
	Total	924	100,0	100,0	

Tableau croisé Homework as a main or secondary activity * lft_weging

Effectif

		lft_weging			Total
		18-34 jaar	35-54 jaar	55-74 jaar	
Homework as a main or secondary activity	,00	66	637	16	719
	1,00	34	169	2	205
Total		100	806	18	924

As can be seen from Table 3, the 35-54 age bracket is largely overrepresented in this population of parents with supervising homeworks, which reflects the distribution observed in the population at risk that we had previously identified. However we could also analyze this under-representation of the slice of 18-34 years as a result of professional investment that these young parents must balance against the supervision of school work at home. Moreover, it is quite logical to assume that the majority of these parents have young children, and therefore do not have a lot of work related to that framework (October, 2004).

Table 4: Population at risk * educational level

opl_weging

		Fréquence	Pourcentage	Pourcentage valide	Pourcentage cumulé
Valide	< 15 y; No formal; Max. Lower Sec. Edu (ISCED 1 2)	145	15,7	15,7	15,7
	(Post) Secondary Education (ISCED 3 4)	308	33,3	33,3	49,0
	First and second stage Tertiary Eduction (ISCED 5 6)	471	51,0	51,0	100,0
	Total	924	100,0	100,0	

Tableau croisé Homework as a main or secondary activity * opl_weging

Effectif

		opl_weging			Total
		< 15 y; No formal; Max. Lower Sec. Edu (ISCED 1 2)	(Post) Secondary Education (ISCED 3 4)	First and second stage Tertiary Eduction (ISCED 5 6)	
Homework as a main or secondary activity	,00	116	236	367	719
	1,00	29	72	104	205
Total		145	308	471	924

As we can see from Table 4 by putting into perspective the two tables, the distribution of the parents supervising school work of their children is pretty much the same as in the population at risk. One could consider here that we sink doors open as it is quite logical that parents who had the opportunity to get a better education level will be more likely to supervise their children. Nevertheless, it would be interesting to put these results in perspective with what various preliminary investigations could teach us in terms of strategies popular populations in relation to the issue of homework (Kapko, 2012).

Table 5: Population at risk * family situation

famsit

		Fréquence	Pourcentage	Pourcentage valide	Pourcentage cumulé
Valide	single parent	107	11,6	11,6	11,6
	two parent	817	88,4	88,4	100,0
	Total	924	100,0	100,0	

Tableau croisé Homework as a main or secondary activity * famsit

Effectif

		famsit		
		single parent	two parent	Total
Homework as a main or secondary activity	,00	78	641	719
	1,00	29	176	205
Total		107	817	924

Both in the population at risk and in the one we could finally select, we observe the overwhelming majority of families with two parents (see Table 5). Indeed, if the model of single parenthood is gaining ground in our societies, we find that the most common family situation is always a home with two parents. It is also quite logical that we observe the same under-representation of single-parent households in the supervision of school work at home, because the parents cannot rest on another partner to support both a professional career and the daily tasks which include duties. It is also reminiscent of the observations that we have made above where we had studied the distribution according to age groups, highlighting the under-representation of younger relatives who were juggling job careers potentially more invasive.

Table 6: Population at risk * number of childern

Number of children (younger than 18) in the household

		Fréquence	Pourcentage	Pourcentage valide	Pourcentage cumulé
Valide	1,00	285	30,8	30,8	30,8
	2,00	450	48,7	48,7	79,5
	3,00	157	17,0	17,0	96,5
	4,00	26	2,8	2,8	99,4
	5,00	6	,6	,6	100,0
	Total	924	100,0	100,0	

Tableau croisé Homework as a main or secondary activity * Number of children (younger than 18) in the household

Effectif

		Number of children (younger than 18) in the household					Total
		1,00	2,00	3,00	4,00	5,00	
Homework as a main or secondary activity	,00	240	348	110	18	3	719
	1,00	45	102	47	8	3	205
Total		285	450	157	26	6	924

Contrary to what one might imagine, we observe that the majority of families who supervise the homework of their children are not those with either a single child who could devote more time to him, or those with a larger number of children (3 or more) which could organize working sessions involving different children (see Table 6). Indeed, we observe that families with two children are widely majority in this table as they represent 50% of the targeted population. It is noteworthy that these families are otherwise also largely represented in the population at risk, which was the basis for our analyzes. Moreover, we can postulate that since the majority of couples have two parents, one finds a comparatively fewer parents supervising homework when there is a child, since one can handle. Whereas when there are at least two children, both parents may have to be involved in this task which will take time and more prominence.

Table 7: Population at risk * sector of employment

sector

		Fréquence	Pourcentage	Pourcentage valide	Pourcentage cumulé
Valide	employed in private	430	46,5	46,5	46,5
	employed in public	186	20,1	20,1	66,7
	self employed	98	10,6	10,6	77,3
	not employed	210	22,7	22,7	100,0
	Total	924	100,0	100,0	

Tableau croisé Homework as a main or secondary activity * sector

Effectif

		sector				
		employed in private	employed in public	self employed	not employed	Total
Homework as a main or secondary activity	,00	337	138	86	158	719
	1,00	93	48	12	52	205
Total		430	186	98	210	924

We can see in Table 7 that the majority of individuals involved in the supervision of school work of their children is made by parents working in the private sector. However, we can also see that the public sector individuals and those without jobs are not left out since their combination leads to an equivalent percentage. Several points may already be highlighted here. First, contrary to what one might imagine at first glance, they are neither parents without jobs or even inserted in the public sector are more likely to invest time in this school coaching home-based task, but those who are working in the private sector. The assumption that the frequency and intensity of this investment would be mainly influenced by the regularity of hours (generally recognized as one of the hallmarks public) or available daily time range (when the individual has no job) could already be called into issue noted that since it is the private that is the most widely represented. Furthermore, the second table allows us to move in the direction of the hypothesis that the self-employed would have far less time and resources to supervise homework, because of their more extensive schedules, which are less regular or stable. We will highlight how this is reflected in the results of the logistic regression model.

Table 8: Population at risk * contract

contract

		Fréquence	Pourcentage	Pourcentage valide	Pourcentage cumulé
Valide	full time	550	59,5	59,5	59,5
	part time	261	28,2	28,2	87,8
	not employed	113	12,2	12,2	100,0
	Total	924	100,0	100,0	

Tableau croisé Homework as a main or secondary activity * contract

Effectif

		contract			Total
		full time	part time	not employed	
Homework as a main or secondary activity	,00	456	181	82	719
	1,00	94	80	31	205
Total		550	261	113	924

In continuation of the previous point, the cross table enables to question the assumptions according to which the frame of the home school work would be mainly due to a question of time and availability. As seen in Table 8, the proportion of parents working full-time is substantially the same as those who have a part-time contract, although slightly lower for these. However, here also notes that unemployed individuals, and thus the one potentially having the greatest time slots, are less invested that the working parents. Comparing with the results of the regression model, we can see if we can extend these assumptions or if we cannot infer it to a wider population.

Multivariate results

We identified a number of different trends by building the cross tables, and here we will extend the analysis by developing a multivariate regression model (see Table 9). Through it, we can highlight how different factors will be able to have some correlation with how individuals will more or less be involved in the supervision of school work at home for their children. We did highlight these significate factors, in the table, according to an order of importance from an average correlation to extremely significant (* representing the lowest level and *** bringing together the most significant variables). We can now note the presence of variables identified by "(*)", which will be discussed later and which represent the factors whose significance has declined rapidly when adding additional variables.

Table 9: Multivariate regression model for homework supervision

Variables de l'équation									
								pour EXP(B)	
		B	E.S	Wald	ddl	Sig.	Exp(B)	Inférieur	Supérieur
Pas 1[a]	Man	*** -1,09	,215	26,214	1	*** 0	,333	,219	,507
	18-34 vs 35-54	(*) 0,334	,245	1,861	1	(*) 0,173	1,397	,864	2,257
	55-74 vs 35-54	-,012	,779	,000	1	,988	,988	,215	4,549
	low education vs medium education	-,139	,262	,279	1	,597	,871	,521	1,455
	high education vs medium education	-,138	,189	,536	1	,464	,871	,601	1,261
	2 children vs 1 kid	** 0,49	,212	5,380	1	** 0,02	1,635	1,079	2,477
	3 children and more vs 1 kid	*** 0,95	,244	15,248	1	*** 0,000	2,593	1,607	4,184
	Monoparental vs two parents	,066	,253	,069	1	,793	1,069	,651	1,754
	Private vs no job	,084	,224	,140	1	,708	1,088	,701	1,688
	Public vs no job	,164	,251	,427	1	,513	1,179	,720	1,929
	Self employed vs no job	(*) -0,545	,366	2,223	1	(*) 0,135	,579	,283	1,187
	Part-time vs Full-time	,082	,200	,168	1	,682	1,085	,734	1,606
	Constante	-1,331	,273	23,698	1	,000	,264		

The first thing to note is the impact of gender on the investment of individuals in supervising homeworks. Unlike the first case study, we didn't build a regression model divided by gender, in fact it seemed, during the review of the literature, the number of potentially impactful factors was significantly more reduced and besides the fact that sex plays an undeniable role in the way people would tend to take over the supervision of homework activities. However, the binary logistic regression model we built integrates this gendered data in the first step, and we can instantly identify its impact, and analyze how this evolves when we add new variables. More specifically, when looking at the results in the table, we observed the level of most important significance since the Sigma value is 0.000. This means that the chances of being able to infer the results to a wider population are very large, and that those results are quite reliable. Men therefore have a negative ratio of -1 compared to women, which means that there are two times more likely for women to take charge of this activity. Unlike some speeches that highlight how the division of household labor (which includes school guidance) would have shifted in recent years towards greater equality, here we see that men still seem largely underrepresented. It would be pertinent to dig in this direction to have a better view of how household tasks are distributed among the population according to this gendered perspective (Fagnani & Letablier, 2003; Lesnard, 2003; Meda, 2001).

Secondly, we can observe that there are only two other significant variables in the results of the regression model, and both are connected to the same factor, ie the number of children. However, it is emphasized that their significance is different, which impacts the force with

which we can infer these variables to a larger population. Although in half of the cases, the families were composed of two children, we chose to put into perspective the variables having a child, in order to observe the evolution of the investment as the number of children grows. As we can see, having two children significantly increases the chances of supervising homework for the parents, however, the inference level is higher when the parents have three or more children. Indeed, in this case, chances are doubled while when there are only two children, there is a ratio of 0.5. We can see here a difference with the cross table that we built and in which the proportions of either parent with a child, or three and more children, were pretty much the same. If we find a similar relation for the passage of a child to a family with two, the impact of the arrival of a third (or more) child seems much more important.

These observations on the number of children are relatively logical since with an increasing number of children, the parents may have to invest more time in it, since the overall workload grows with each new kid. Nevertheless, it is interesting to highlight that families with only one child are those least likely to see people get involved in homework supervision. It would be interesting to dig in this direction to further identify the determinants, but we can already advance the hypothesis that since the workload is more limited, only one of the parents must take charge of the homework task, reducing the chances to see individuals represented in our results. Moreover, we should consider more external variables, such as the weight and role of tutors or homework supervision offered by the school. In this case, the fact that there is only one child could lead the parents to invest in tutoring services in order to free more time to their professional careers or other family and leisure activities.

Finally, we will return briefly to the two variables that were significant in the early stages of the regression model, but lost an inference as we did add new variables. First, the age variable presented a significant value until we introduce the number of children to the equation. Thus, individuals in the range of 18-34 years appeared to have a positive probability of 0.5 compared to the reference age bracket (35-54), which could mean they were more likely to invest in homework supervision. This observation was totally against the results of the corresponding cross table, and it seems therefore appropriate to widen further this question in future research. Indeed, the loss of significance of this variable could simply be related to the relatively small size of our identified population, and it would be interesting to see how these results could be found (or not) at a larger scale in the population. Then we can also observe that the fact of working as a self-employed may have an impact on how parents are involved in homework supervision. While the Sigma value is not significant it is still very low, and it would be interesting to dig in that direction with a larger population to identify the evolution of results. Already in the cross table, we have seen highly marked results for the self-employed who had the lowest rate of representation. It would therefore be appropriate to check that information subsequently and to identify the extent to which this status has an influence on the investment in homework supervision and the underlying

causes of it (a need for more temporal investment in professional activities could be a first hypothesis).

Conclusion

As we can see, this case study on the supervision of schoolwork at home by parents is much less dense and rich in results as the first one on time pressure. We saw that we had to deal with a very small population that was greatly reducing the opportunities to infer these results to a wider population. However, we could highlight different factors that should be mobilized and digged on in future surveys to get a better understanding of the impact of variables such as age or number of children in the way individuals will invest this type of activity, and more broadly how this will impact the distribution of roles, since we have seen the gender remains a predominant factor.

Bibliography

Francis (V.), « La parentalité à l'épreuve de la scolarité. Approches parentales de l'offre d'accompagnement en contexte de transitions. », Connexions 2/2011 (n° 96), p. 161-178.

Bergonnier-Dupuy (G.), Esparbès-Pistre (S.), « Accompagnement familial de la scolarité : le point de vue du père et de la mère d'adolescents (en collège et lycée). », Les Sciences de l'éducation - Pour l'Ère nouvelle 4/2007 (Vol. 40), p. 21-45.

Zay (D.) (dir.), 2005, « Prévenir l'exclusion scolaire et sociale des jeunes », Paris, PUF, 334p.

Van Zanten (A.), 2009, « Choisir son école », Paris, PUF, 304.

« L'environnement familial et scolaire des 6-14 ans », in Octobre (S.), 2004, « Les loisirs culturels des 6-14ans », Paris, Ministère de la Culture – DEPS, pp. 25-49.

Chapelle (G.) et Crahay (M.), 2009, « Réussir à apprendre », Paris, PUF, 244p.

Tazouti (Y.), « Relations entre l'implication parentale dans la scolarité et les performances scolaires de l'enfant, que faut-il retenir des études empiriques ? », in Larivée (S.) et Poncelet (D.) (dir.), « Ecole-famille-communauté. Des pratiques de collaboration efficaces », La revue internationale de l'éducation familiale, 2014/2 (n°36), L'Harmattan, pp. 97-116.

Bergier (B.) et Francequin (G.), 2011, « La revanche scolaire. Des élèves multiredoublants devenus surdiplômés », Toulouse, ERES, 288p.

Cacouault-Bitaud (M.) et Oeuvrad (F.), 2009, « Sociologie de l'éducation », Paris, Repères, La Découverte, 128p.

Kapko (S.), 2012, « Les devoirs à la maison. Mobilisation et désorientation des familles populaires », Paris, PUF, 214p.

Fagnani (J.) & Letablier (M-T.) (2003), « S'occuper des enfants au quotidien : mais que font donc les pères ? », Droit social, n°3l.

Lesnard (L.) (2003), « Disponibilité parentale et activités familiales », CREST, INSEE.

Boyer (D.) & Nicolas (M.) (2006) « La disponibilité des pères : subordonnée aux contraintes de travail des mères ? » Recherches & Prévisions, CNAF.

Meda (D.) (2001), « Le temps des femmes. Pour un nouveau partage des rôles », Paris, Flammarion.

APPENDIX E: LFS&TIME WORKING PAPER 5

Case testing 2: Being rushed and time pressure

Fusulier, B. & A. Delporte

Introduction

The main idea behind this first case study is to put to the test the relevance and the originality of a new database, made by the merging of three databases (TUS, LFS and WG). In order to do so we will try to identify what it can reveal about the feeling of time pressure, felt by people in our contemporary society, seen by some as a 24/7 society (Presser, 2005). So nowadays it would be more and more common for people to have to combine always heavier and complex schedules, between work, family obligations and leisure time. By combining the strengths of every database, we will try to obtain a new set of information about major tendencies related to this feeling of time pressure. To do so we built a model allowing us to highlight the ways in which the three major dimensions (sociodemographic characteristics, work and leisure time) might have an influence (positive or negative) on the apparition and the reinforcement of the impression of constantly running out of time. Considering the previous surveys on this question of time use, it appears to us that it's essential to build this model separately for men and women, in order to identify more carefully the differences in the way they face this feeling. Our purpose here is to start with the information found in the different databases to identify a set of profiles and the elements that could have an impact. We plan to build the same model about the question of life satisfaction felt by people and to try to identify the possible links between those two feelings.

Methodology

The first step in our test of the new database will be to build some crossing tables that will allow us to build a brief state of our population and to draw a few first analyses. Afterwards we will present the regression analysis model that we used to identify the variables that could have a significant correlation with the feeling of time pressure (that we still need to define here) and that could have an influence on the ways people develop (or not) this impression of a constant lack of time. In order to make a clear model we did form three major blocks with all the independent variables: first, several sociodemographic and family characteristics, then the work characteristics and the working schedules, and finally the time dedicated to leisure activities. We will build two separate models, based on the gender as we

explained *supra*. In order to get the information that we found relevant, we build several variables by crossing elements found in the different databases. For example, it wasn't possible to instantly find a variable describing the family situation of an individual (one part was in the LFS and the rest in the TUS Household).

Before presenting briefly every variable we found relevant to put into our regression model, we will take some space to introduce the way we built the concept of "time pressure feeling", and how we built it with elements of the different databases. Seeing the specific identity of each database, we quickly realized that most of the questions related to the time pressure were found in the Time Use Survey, and more specifically in the version dedicated to the adults. Like so we find questions like "in my opinion one day doesn't have enough hours", "I have no time to do everything I have to do" or "I never have time for me" (Q12 and Q13 for leisure time). By combing the people that positively answered to at least some of these questions, we were able to identify a population of individuals with that feeling of time pressure, among the total population of the database "TUS volw". By mobilizing the LFS database, we have been able to cross this particular population with several sociodemographic or professional variables and we will present some results in the following cross-tabs.

Finally we have built a regression model around three blocks of variables that we will present here. In the sociodemographic variables we took the elements that could have an impact on the making of that feeling of time pressure but could also reinforce or reduce it. Thus we decided to take into account, in addition to the age and gender variables, the education level and the family situation (the presence of a partner and/or children). For the working sphere we choose the information related to the sector activity, the stability of the contract but also to the time dedicated to work every week and the atypical schedules (evening work and weekends). Finally for the leisure activities, we identified the total amount of leisure time spent every week, the number of different activities and the space taken by television among the total amount of leisure time.

Bivariate results

In this part we will cross the "rushedpeople" population with several variables that we will use later in the regression model. The idea is to establish a first picture of our population and to identify some profiles to be polished later. Given that we plan to build two separate models based on gender, we built two variables ("rushedmen" and "rushedwomen") that we will mobilize in these cross-tabs.

So we noticed that we could identify 1284 women and 1268 men, among our population, for a total of 2552 individuals confronted to this feeling of time pressure, which represents a bit

more than the half of the total population in the TUS database. Being rushed mainly takes place between 30-54 years for both women and men (see Table 1a-b).

Figure 1: Being rushed by gender and age categories

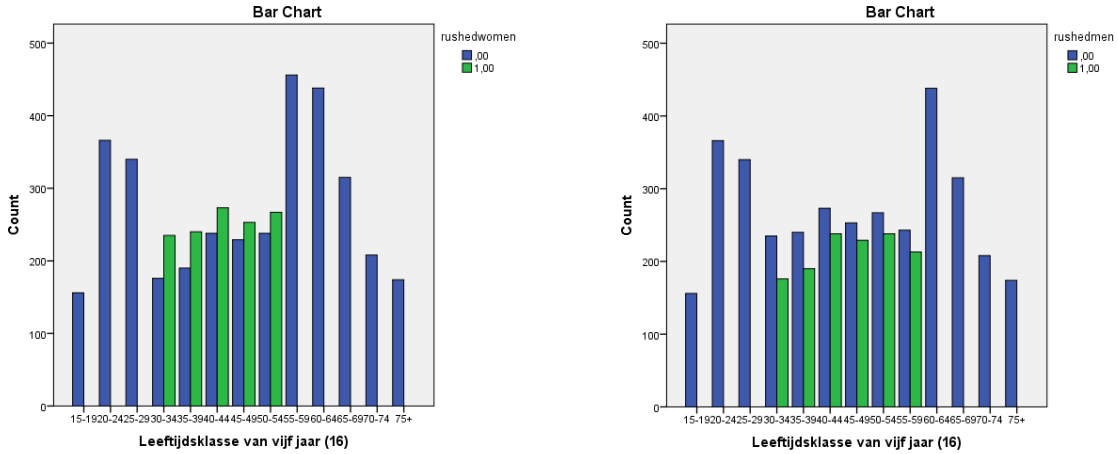


Table 1a: Contingency table of women being rushed *age categories

		Women		
		Not rushed	Rushed	Total
Age categories	15-19	156	0	156
	20-24	366	0	366
	25-29	340	0	340
	30-34	176	235	411
	35-39	190	240	430
	40-44	238	273	511
	45-49	229	253	482
	50-54	238	267	505
	55-59	456	0	456
	60-64	438	0	438
	65-69	315	0	315
	70-74	208	0	208
	75+	174	0	174
Total		3524	1268	4792

Table 1b: Contingency table of men being rushed *age categories

		Men		
		Not rushed	Rushed	Total
Age categories	15-19	156	0	156
	20-24	366	0	366
	25-29	340	0	340
	30-34	235	176	411
	35-39	240	190	430
	40-44	273	238	511
	45-49	253	229	482
	50-54	267	238	505
	55-59	243	213	456
	60-64	438	0	438
	65-69	315	0	315
	70-74	208	0	208
	75+	174	0	174
Total		3508	1284	4792

Family situation:

In order to obtain a variable that describe faithfully the family situation of the individuals, we had to combine questions of the LFS and of the TUS Household databases. Consequently we have been able to identify if an individual had a partner and/or children along with their ages. By combining the variable "famsit" with the two main variables (rushedmen/rushedwomen) we can highlight some tracks that we will put to the test in the regression model analysis (see Table 2a-b). This shows that the majority of people feeling the time pressure are involved in a family situation with a partner (in a slightly higher proportion for men when there are no children). Moreover, we note that being a single parent is comparatively less impacting for men than for women, with regard to the development of a sense of time pressure.

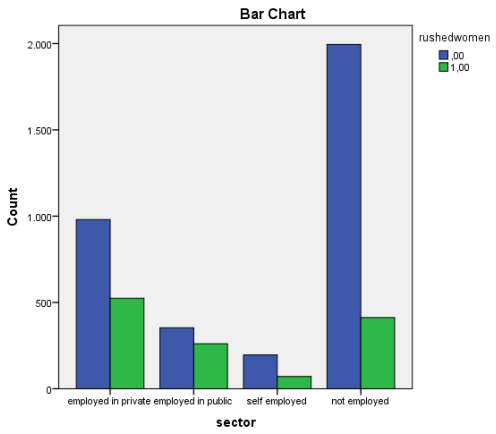
Table 2a: Contingency table of women being rushed*family situation

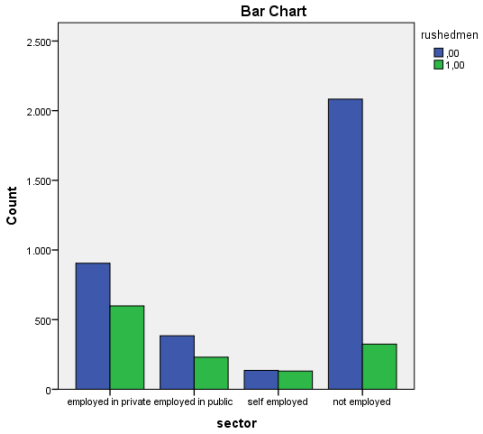
			Women		
			Not rushed	Rushed	Total
Family situation	Single	Count	639	314	953
		% within rushedwomen	18,1%	24,8%	19,9%
	with partner	Count	1856	626	2482
		% within rushedwomen	52,7%	49,4%	51,8%
	single parent	Count	158	68	226
		% within rushedwomen	4,5%	5,4%	4,7%
	two parent	Count	543	187	730
		% within rushedwomen	15,4%	14,7%	15,2%
	other	Count	328	73	401
		% within rushedwomen	9,3%	5,8%	8,4%
Total		Count	3524	1268	4792
		% within rushedwomen	100,0%	100,0%	100,0%

Table 2b: Contingency table of men being rushed*family situation

			Men		
			Not rushed	Rushed	Total
Family situation	Single	Count	730	223	953
		% within rushedmen	20,8%	17,4%	19,9%
	with partner	Count	1742	740	2482
		% within rushedmen	49,7%	57,6%	51,8%
	single parent	Count	200	26	226
		% within rushedmen	5,7%	2,0%	4,7%
	two parent	Count	519	211	730
		% within rushedmen	14,8%	16,4%	15,2%
	other	Count	317	84	401
		% within rushedmen	9,0%	6,5%	8,4%
Total		Count	3508	1284	4792
		% within rushedmen	100,0%	100,0%	100,0%

Figure 2: Being rushed by gender and family situation





Contract:

The comparison of the Tables 3a-b shows here quite marked differences between the sexes. Indeed, if one finds nearly 80 % of men, feeling time pressure in a full- time status, women are for their part distributed fairly evenly between full- time and part-time. Since nearly 40 % of women in this population are in a situation of part-time, one can deduce that it is a vector that creates a certain time pressure or at least that it is more strongly felt than by men.

Table 3a: Contingency table of women being rushed*contract

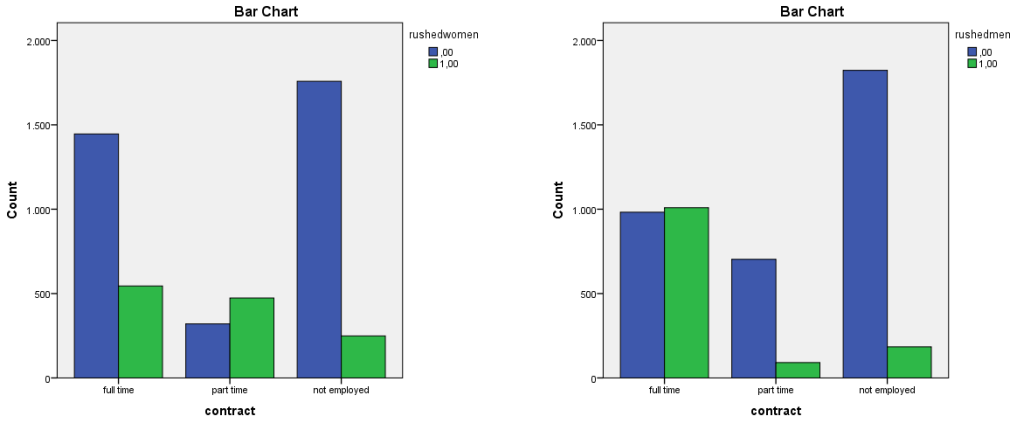
			Women		
			Not rushed	Rushed	Total
contract	full time	Count	1446	545	1991
		% within rushedwomen	41,0%	43,0%	41,5%
	part time	Count	320	474	794
		% within rushedwomen	9,1%	37,4%	16,6%
	not employed	Count	1758	249	2007
		% within rushedwomen	49,9%	19,6%	41,9%
Total		Count	3524	1268	4792
		% within rushedwomen	100,0%	100,0%	100,0%

Table 3b: Contingency table of men being rushed*contra

	Men	Total

			Not rushed	Rushed	
contract	full time	Count	982	1009	1991
		% within rushedmen	28,0%	78,6%	41,5%
	part time	Count	703	91	794
		% within rushedmen	20,0%	7,1%	16,6%
	not employed	Count	1823	184	2007
		% within rushedmen	52,0%	14,3%	41,9%
Total		Count	3508	1284	4792
		% within rushedmen	100,0%	100,0%	100,0%

Figure 3: Being rushed by gender and contract



Leisure Time:

When we built the variables related to leisure activities, we decided to exclude the time spent watching television by considering that it was a separate activity and that to isolate it would allow us to put more stress on the importance of other leisure activities, including in terms of diversity (see Tables 4a-b). Note that the tables have a substantially similar distribution in which the majority of individuals feeling time pressure are within the first four cells (85% for women and nearly 80% for men).

Table 4a: Contingency table of women being rushed*different leisure activities without TV

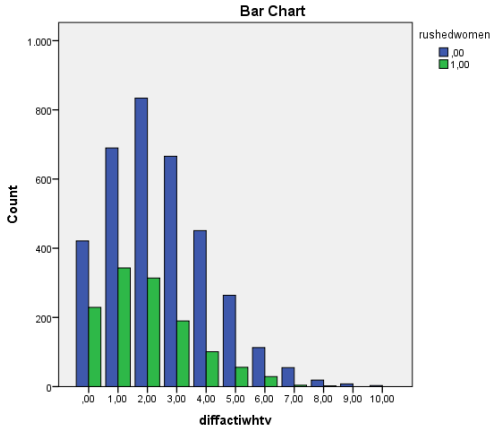
			Women		
			Not rushed	Rushed	Total
Different leisure activities without TV	0	Count	421	229	650
		% within rushedwomen	11,9%	18,1%	13,6%
	1	Count	690	343	1033
		% within rushedwomen	19,6%	27,1%	21,6%
	2	Count	834	314	1148
		% within rushedwomen	23,7%	24,8%	24,0%
	3	Count	666	190	856
		% within rushedwomen	18,9%	15,0%	17,9%
	4	Count	451	101	552
		% within rushedwomen	12,8%	8,0%	11,5%
	5	Count	264	56	320
		% within rushedwomen	7,5%	4,4%	6,7%
	6	Count	113	29	142
		% within rushedwomen	3,2%	2,3%	3,0%
	7	Count	55	4	59
		% within rushedwomen	1,6%	0,3%	1,2%
	8	Count	19	2	21
		% within rushedwomen	0,5%	0,2%	0,4%
	9	Count	8	0	8
		% within rushedwomen	0,2%	0,0%	0,2%
	10	Count	3	0	3
		% within rushedwomen	0,1%	0,0%	0,1%
Total		Count	3524	1268	4792
		% within rushedwomen	100,0%	100,0%	100,0%

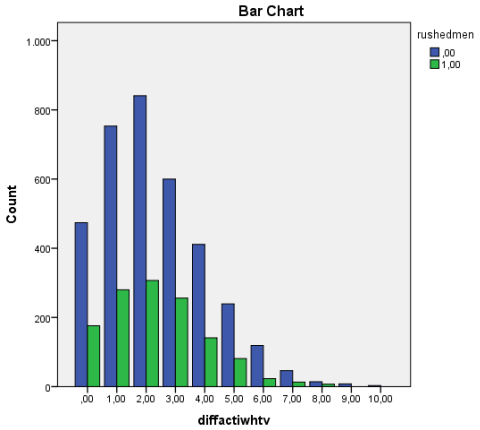
Table 4b: Contingency table of men being rushed*different leisure activities without TV

			Men		
			Not rushed	Rushed	Total
Different leisure activities without TV	0	Count	474	176	650
		% within rushedmen	13,5%	13,7%	13,6%
	1	Count	753	280	1033
		% within rushedmen	21,5%	21,8%	21,6%
	2	Count	841	307	1148

		% within rushedmen	24,0%	23,9%	24,0%
	3	Count	600	256	856
		% within rushedmen	17,1%	19,9%	17,9%
	4	Count	411	141	552
		% within rushedmen	11,7%	11,0%	11,5%
	5	Count	239	81	320
		% within rushedmen	6,8%	6,3%	6,7%
	6	Count	119	23	142
		% within rushedmen	3,4%	1,8%	3,0%
	7	Count	46	13	59
		% within rushedmen	1,3%	1,0%	1,2%
	8	Count	14	7	21
		% within rushedmen	0,4%	0,5%	0,4%
	9	Count	8	0	8
		% within rushedmen	0,2%	0,0%	0,2%
	10	Count	3	0	3
		% within rushedmen	0,1%	0,0%	0,1%
Total		Count	3508	1284	4792
		% within rushedmen	100,0%	100,0%	100,0%

Figure 4: Being rushed by gender and different leisure activities





Multivariate results

Time Pressure:

We identified a number of different trends by building crossing tables, and here we will extend the analysis by developing a multivariate regression model. Through it, we can highlight how different factors (present within three blocks of variables) are going to have some correlation with the constitution of a sense of time pressure, and through a gendered filter.

Table 5 as derived from the multivariate regression model allows us to identify clearly relevant factors correlated with the development of a sense of time pressure, and thus to identify, within the three blocks of variables, significant elements for both men and women, as well as those specific to a particular sex. We have highlighted in the table, according to an order of importance from mild correlation to a much stronger relationship (* representing the lowest level and *** bringing together the most significant variables). By highlighting the significant variables for each of the sexes and their respective significance, we can identify a number of trends and propose various hypotheses that we will put in perspective with the results of previous investigations.

Regarding the significant variables for men, different levels of impact can be noticed: having both a partner and a child under seven years and the fact of working as an independent form the highest level of correlation with the creation of a sense of time pressure, while working in the evening turns out to have a slightly less important influence. Finally, we can see that the proportion of time dedicated to leisure every week will help to alleviate this pressure they may experience, although it appears to be at the lowest level of influence. Even though we will return at length on these elements a little lower, we can already highlight that the family situation seems to have little influence on the creation of a sense of time pressure, apart

from the specific cases where the man is in a couple and is in charge of a very young child, while the labor seems to have a bigger impact both in terms of status (independent) and at the level of schedules (evening) in this process.

Table 5: Multivariate regression model for being rushed for women and men

DEPENDENT: TIME PRESSURE	WOMEN					MEN				
	Unst. Coefficients		St. Coefficients			Unst. Coefficients		St. Coefficients		
	B	Std. Error	Beta	t	Sig.	B	Std. Error	Beta	t	Sig.
(Constant)	42,742	2,536		16,856	0,000	40,102	2,508		15,988	0,000
SOCIODEMOGRAPHIC CHARACTERISTICS										
Age										
30-44 vs. 18-29	4,260	1,366	***0,122	3,120	***0,002	0,072	1,353	0,002	0,053	0,958
45-59 vs. 18-29	2,289	1,466	0,063	1,562	0,119	-0,286	1,347	-0,009	-0,212	0,832
60-above vs. 18-29	-0,340	2,843	-0,004	-0,119	0,905	-0,537	2,253	-0,008	-0,238	0,812
Education										
'medium vs. low'	4,020	1,577	***0,075	2,550	**0,011	-2,054	1,272	-0,050	-1,615	0,107
'high vs. low'	1,175	1,061	0,032	1,107	0,268	0,132	0,954	0,004	0,138	0,890
Family situation										
no partner kid <7 vs. no partner no kids	7,866	2,398	***0,104	3,280	***0,001	3,028	3,673	0,024	0,825	0,410
no partner kid >7 vs. no partner no kids	5,920	1,940	***0,102	3,051	***0,002	0,636	2,217	0,009	0,287	0,774
partner no kid vs. no partner no kids	0,465	1,601	0,011	0,291	0,771	0,155	1,480	0,004	0,104	0,917
partner kid <7 vs. no partner no kids	9,012	1,754	***0,21	5,137	***0	5,898	1,511	***0,167	3,905	***0
partner kid >7 vs. no partner no kids	4,653	1,544	***0,122	3,013	***0,003	2,172	1,404	0,067	1,547	0,122
WORK CHARACTERISTICS										
Work situation										
fulltime private vs. unemployed	-0,161	1,520	-0,004	-0,106	0,916	0,832	1,335	0,027	0,623	0,533
parttime private vs. unemployed	-1,337	1,437	-0,033	-0,931	0,352	0,570	2,281	0,008	0,250	0,803
fulltime public vs. unemployed	-1,664	1,681	-0,034	-0,990	0,323	1,296	1,523	0,033	0,850	0,395
parttime public vs. unemployed	0,049	1,844	0,001	0,027	0,979	-2,635	3,328	-0,023	-0,792	0,429
selfemployed vs. unemployed	2,601	2,240	0,037	1,161	0,246	5,795	1,821	***0,127	3,182	***0,002
Working hours										
Total duration of work in # 5-min episodes	0,008	0,003	**0,091	2,741	**0,006	0,003	0,003	0,040	1,116	0,265
Atypical working hours										
Evening work vs. no evening work	0,714	1,288	0,017	0,554	0,580	2,749	1,035	**0,085	2,656	**0,008
Weekend work vs. no weekend work	-0,144	1,328	-0,003	-0,108	0,914	0,643	1,178	0,018	0,545	0,586
LEISURE CHARACTERISTUCS										
Leisure time										
total leisure time per week	-0,155	0,047	***-0,102	-3,308	***0,001	-0,073	0,036	*-0,068	-2,038	*0,042
Activities										
# different leisure activities	-1,300	0,451	***-0,111	-2,884	***0,004	-0,060	0,376	-0,006	-0,159	0,874
Percentage tv during leisure										
Low <40% vs. medium	1,633	1,216	0,041	13,440	0,179	0,169	1,067	0,005	0,158	0,874
High <86% vs. medium	-0,936	1,292	-0,025	-0,724	0,469	1,459	1,231	0,041	1,186	0,236

For women, we see a much greater impact of the sociodemographic characteristics: in fact, all family configurations (celibacy childless apart) have a very important correlation with the phenomenon of creation of a sense of time pressure. Furthermore age also plays an important role, especially during the transition to the age group of 30-44 years, which often is when the family situation of women is changing with the arrival of children. Note that the educational level is also important since to be in the "medium" category is correlated with the feeling when we can't find it within the less educated women. Moreover we can see that the total working time can have an impact of the feeling of time pressure while time dedicated to leisure and the diversity of these can cause a decrease in the feeling.

By putting into perspective the various significant variables, for both men and women, here we will try to draw some broad strokes and assumptions for both sexes, but also to highlight the elements that can influence for both. Thus, the creation of a sense of time pressure for

men seems closely related to the professional sphere and more specifically the stability of the latter.

Indeed, having atypical and situated in the evening hours may appear very different over traditional representations usually associated with the world of work and therefore increase the time pressure and the feeling of not being able to manage everything. Moreover, the self-employed status is strongly correlated with the creation of such a feeling, which can be explained in a similar way by the need of greater adaptability in schedules as this status usually means but also by the huge need of success that men might experience, since they do not fit in a wage dynamic and they have to ensure the sustainability of their business (including by accepting a wide schedules flexibility and a potential increase of working time each week). It seems, moreover, that even the impact of a couple and family situations with a child younger than seven years can be related to this predominance of the influence of the professional sphere. Indeed, since we do not observe influence of the presence of either a partner or a child even very young, we can submit the hypothesis that the family situation becomes potentially challenging in terms of pressure time when that involves to dedicate time to both a partner and a young child (which requires a lot of care and presence), which implies a potential competition with time previously allocated to professional activities.

As we have already pointed out, the elements coming into play to build a sense of time pressure for women seem mainly related to the domestic sphere and sociodemographic characteristics. Indeed, all the family configurations seem to have a significant correlation ratio, which makes us think that women might tend to give more importance to it than to other spheres there (as the professional sphere) and therefore spend more time there. Seeing the time allowed to the family compete with the working time would therefore be generating a feeling of pressure, which is also confirmed when we observe the particularly strong correlation to the portion of the passage of age 30-44 , which often corresponds to the arrival of a child and a stabilization of the family home (Glorieux & Van Tienoven , 2009). Furthermore, the fact that only the increase in total working time during the week can negatively influence this feeling reinforces our previous hypothesis and suggest that women might perceive the atypical hours as positive (very weak correlation) since it would allow them to allocate their time more easily and combine with the moments of work with the one with their children: we think in particular to finish work earlier in order to pick the children to school and then get back to work later in the evening, once the children are asleep (Fagnani & Letablier 2003 ; Lesnard, 2003).

Besides the fact that the presence of children, whatever their age or their number, involves in every case a correlation on creating a sense of time pressure shows that they are a permanent concern and may bring many changes to timetables, or possibly even a reduction in the total amount of hours worked per week . This observation allows us to feed the reflections (Nicolas & Boyer , 2006) about the evolution of the division of labor within

households into relatively equal, showing that men are still much less affected by the presence of children and women, not least in terms of time pressure, but also more widely.

Finally, note that for women the transition to a level of education considered as "medium" (see description of variables) may involve more time pressure, since that they give more importance to balance both work , family and leisure (Meda , 2001). It is also possible to see the influence of most addictive jobs that involve a blurring of the boundaries between the different spheres of social life.

It is interesting to highlight that two variables share the same degree of correlation among both men and women: First combining a partner and a child younger than seven years old seems to have a strong influence for both sexes. This is explained simply enough as it means the multiplication of spheres of everyday life and involves both clear time for the partner and the children (including that a young age increases the time required) and more work and leisure activities. However, we have been able to demonstrate that this phenomenon is widespread among women for all family configurations, and not only this one in particular. The presence of this variable for men could thus be explained by the fact that it would be the only situation where the family sphere require an important time (due to the young age of the child) and involve a competition between the different activities, potentially involving to have to suspend some leisure time or to compensate it by accumulating fatigue that would affect their work.

Secondly, we note that, for both sexes, the amount of time spent each week in leisure activities may partly decrease the feeling of time pressure. For women, it is observed that even the diversity of activities also plays a significant role. This observation seems to allow us to feed the questions around the impact of the increasing number of leisure activities on creating time pressure, particularly for men. In relying in particular on the work of Glorieux (2010), we can flesh out the matter and show the all relative influence of the number of activity in creating such a feeling, since he has been able to show that individuals particularly well-endowed in terms of economic and cultural capitals could increase the number of their leisure activities according to an overbooked agenda while developing at the end less time pressure than individuals of the working class who spend considerable time watching television for example.

Life Satisfaction:

We will proceed by the same process of identifying significant variable, advancing a number of assumptions and then develop an analysis combining the elements influencing the creation of these two feelings and try to identify possible interactions between them (see Table 6).

With regard to the significant variables for men, we can see that the greater part is situated within sociodemographic characteristics. Thus, it is clear that the presence of a partner contributes significantly to the creation of a sense of satisfaction, as is the presence of a child, although the latter is slightly less prominent since the significance of the situation of single parenthood ends up with a lower correlation ratio. Within the sphere of work, the independent status seems to positively mark men who manage to derive a sense of satisfaction from it. Finally, we observe that the diversity of leisure activities practiced also contributes to the development of this feeling. In a reverse perspective, as soon as the educational level reaches or exceeds the category "medium" we note a negative influence on satisfaction of men, and one can assume that this is due to the confrontation between expectations or higher aspirations with the difficulties of everyday reality to combine them all, but we'll get to that later.

Table 6: Multivariate regression model for life satisfaction for women and men

DEPENDENT: LIFE SATISFACTION	WOMEN					MEN				
	Unst. Coefficients		St. Coefficients			Unst. Coefficients		St. Coefficients		
	B	Std. Error	Beta	t	Sig.	B	Std. Error	Beta	t	Sig.
(Constant)	59,321	3,121		19.009,000	0,000	50,080	3,486		14,368	0,000
SOCIODEMOGRAPHIC CHARACTERISTICS										
Age										
30-44 vs. 18-29	-0,946	1,688	-0,025	-0,561	0,575	1,922	1,881	0,050	1,022	0,307
45-59 vs. 18-29	-0,615	1,800	-0,016	-0,342	0,733	3,516	1,868	0,092	1,883	0,060
60-above vs. 18-29	1,886	3,355	0,020	0,562	0,574	6,624	3,376	*0,073	1,962	*0,05
Education										
'medium vs. low'	-8,776	1,914	***-0,154	-4,586	***0	-4,756	1,811	**-0,093	-2,627	**0,009
'high vs. low'	-3,498	1,296	**-0,089	-2,699	**0,007	-3,225	1,347	**-0,084	-2,393	**0,017
Family situation										
no partner kid <7 vs. no partner no kids	-0,756	2,775	-0,010	-0,273	0,785	4,341	4,790	0,030	0,906	0,365
no partner kid >7 vs. no partner no kids	0,991	2,268	0,016	0,437	0,662	6,728	2,994	*0,083	2,247	*0,025
partner no kid vs. no partner no kids	7,629	1,915	***0,161	3,983	***0	6,717	2,019	***0,149	3,327	***0,001
partner kid <7 vs. no partner no kids	10,272	2,141	***0,212	4,798	***0	8,454	2,071	***0,19	4,082	***0
partner kid >7 vs. no partner no kids	7,891	1,832	***0,188	4,308	***0	8,205	1,911	***0,203	4,294	***0
WORK CHARACTERISTICS										
Work situation										
fulltime private vs. unemployed	1,710	1,856	0,039	0,921	0,357	3,364	1,867	0,089	1,802	0,072
parttime private vs. unemployed	1,502	1,759	0,035	0,854	0,393	0,225	3,103	0,003	0,072	0,942
fulltime public vs. unemployed	-0,238	2,092	-0,004	-0,114	0,909	3,957	2,165	0,078	1,827	0,068
parttime public vs. unemployed	0,906	2,252	0,015	0,402	0,688	-0,331	4,257	-0,003	-0,078	0,938
selfemployed vs. unemployed	-2,865	2,808	-0,037	-1,020	0,308	6,844	2,633	**0,117	2,599	**0,009
Working hours										
Total duration of work in # 5-min episodes	-0,006	0,004	-0,066	-1,741	0,082	0,002	0,004	0,018	0,431	0,666
Atypical working hours										
Evening work vs. no evening work	3,137	1,580	*0,072	1,985	*0,047	-2,325	1,452	-0,058	-1,601	0,110
Weekend work vs. no weekend work	-0,015	1,625	0,000	-0,009	0,993	-1,298	1,690	-0,028	-0,768	0,443
LEISURE CHARACTERISTUCS										
Leisure time										
total leisure time per week	-0,069	0,056	-0,043	-1,221	0,222	-0,077	0,050	-0,059	-1,548	0,122
Activities										
# different leisure activities	1,009	0,552	0,081	1,829	0,068	1,490	0,526	**0,125	2,832	**0,005
Percentage tv during leisure										
Low <40% vs. medium	-2,151	1,477	-0,051	-1,457	0,146	-0,547	1,531	-0,013	-0,357	0,721
High <86% vs. medium	-1,543	1,615	-0,037	-0,955	0,340	0,625	1,732	0,014	0,361	0,718

The significant variables for women are much the same, although with some nuances: whether family characteristics still play a major role, we found no more the situation of single parenthood which seems more difficult for women to manage and therefore not allowing the development of some satisfaction, unlike all the other configurations of the home. If for men it is the status that can act as a bonus, here that is the possibility to adapt his schedule according to atypical patterns, specifically around the evening work, which positively influences the perception of satisfaction for the women. This echoes the thoughts that we had previously developed for the time pressure, specifically how the distribution of working time could be crucial for women in terms of management of this pressure. This is even more obvious that men associate these staggered and late hours with some time pressure. We also find, as for men, a negative influence on the degree of education (for "medium" levels and "high").

The case of the satisfaction felt by individuals has far fewer differences between the two sexes than we noticed for the time pressure, we will briefly summarize some peculiarities before highlighting the common trends. For men, the independent status seems to be a source of satisfaction, presumably because it provides some recognition, in addition to be able to picture themselves with a valued self-image or by the flexibility it offers. It is particularly interesting that this same "independent" variable was also being significant for the case of time pressure. Thus, working as a freelancer involves the creation of a certain pressure, but at the same time helps to increase the satisfaction of the individual. This observation puts into perspective the hypothesis which suggests that the presence of a feeling of time pressure would necessarily mean a reduction in quality of life. The number of leisure activities per week is another point of difference between men and women. We saw in the study of time pressure, that the diversity of leisure activities largely contributes to reduce this feeling, while in the case of men it tends to increase the overall satisfaction. So here we perceive a different relationship to leisure activities, since this diversity seems to serve as a valve to release some of the pressure for women, and that men associate it more broadly with the quality of life, without directly link it to a decrease in time pressure.

Men and women share two significant variables in common, although with some nuances, education level and family situation. First, a high level of education (from "medium") causes a drop in satisfaction with the quality of life, since by opening to wider horizons it will lead to the development of high expectations, projects and more ambitious hopes that may be confronted to various obstacles of the everyday life. This limitation is found more significantly among women of the middle class, not only in relation to the satisfaction but also as creator of time pressure. This seems to confirm the hypothesis we had proposed earlier about the difficulties that women were likely to meet when trying to combine career development with the arrival of children, particularly in the transition of the thirties; their professional projects could be slowed down or even broken because of family reasons. The second common significant variable is actually plural, since it brings together the majority of

family situations including a partner and a child. This is not very surprising that the blossoming of individuals goes through the presence of a partner and possibly children. However, we can see a slight difference, which is not trivial in terms of implications: in fact, that single parenthood can be a source of satisfaction for men while it has no significant correlation in women leads us to refer to the difference in status between the sexes. So if a man seems to thrive by managing a child alone, women show more difficulties to do so and to manage front the work and the home.

Conclusion

While many theories have the idea that the sense of time pressure would be largely influenced by the professional sphere and pervasiveness of working time on the other spheres of social life, the observations we have done with this case study allow us to bring a number of nuances. Thus, as some authors have highlighted (Loriol, 2000), time pressure would rather results of the difficulties encountered by individuals to achieve articulating their temporal investments in different spheres and activities, the overall working time per week having declined over the decades. Confronted to a society that promotes an ethos of personal fulfillment above all, the individual desperately seek to invest as much as possible in the various areas of social life (conjugality, parenting, professional sphere, leisure). Since any investment is based on the choice to allocate resources (time and also financial) it inevitably results in (at least partial) sacrifices in other spheres and thus the development of a certain dissatisfaction that may be manifested by the appearance of such a sense of time pressure. The fact that the level of education is also present in both cases reinforces this hypothesis as we have previously highlighted.

When put into dialogue the results on time pressure with those on life satisfaction, we can try to identify, at least partially, the variables that mitigate or influence them (both positively and negatively). One can question this presupposed causality between busy schedules (synonymous with a supposed time pressure) and a necessary dissatisfaction. In his article "In Search of the Harried Leisure Class in Contemporary Society" Glorious (2000) had already highlighted the importance of the influence of the availability of economic and cultural resources on the development of time pressure and how the wealthiest individuals will tend to be able to juggle busy schedules (between work, family and the many recreation) without feeling too much time pressure, while individuals of working class will tend to allocate longer time in activities such as television and then will feel some time pressure and especially greater dissatisfaction. This case study allows us to put in perspective the variables influencing both time pressure and sources of satisfaction (or dissatisfaction) and therefore to be able to better understand how a hectic schedule (including leisure) can still be a source of satisfaction.

Bibliography

Presser (H.) (2005), « Working in a 24/7 Economy. Challenges for American Families », New York, Russel Sage Foundation.

Glorieux (I.) & Van Tienoven (T.P.) (2009), « Genre et emploi du temps. Différences et évolution dans l'emploi du temps des femmes et des hommes belges (2005, 1999 et 1966) », Bruxelles, Institut pour l'Égalité des Femmes et des Hommes.

Fagnani (J.) & Letablier (M-T.) (2003), « S'occuper des enfants au quotidien : mais que font donc les pères ? », Droit social, n°3l.

Lesnard (L.) (2003), « Disponibilité parentale et activités familiales », CREST, INSEE.

Boyer (D.) & Nicolas (M.) (2006) « La disponibilité des pères : subordonnée aux contraintes de travail des mères ? » Recherches & Prévisions, CNAF.

Meda (D.) (2001), « Le temps des femmes. Pour un nouveau partage des rôles », Paris, Flammarion.

Glorieux (I.), Laurijssen (I.), Minnen (J.) & Van Tienoven (T.P.) (2010), « In Search of the Harried Leisure Class in Contemporary Society : Time-Use Surveys and Patterns of Leisure

Loriol (M.) (2000), "Le temps de la fatigue. La gestion sociale du mal-être au travail », Paris, Anthropos.

APPENDIX F: LFS&TIME WORKING PAPER 6

Case testing 3: Subordinate flexibility

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Introduction

Looking at the '21st century work places' we see a tendency towards a disappearing 9 to 5 mentality. Rather flexible working hours are the reality of most companies, leading to non-standard working times becoming the norm, as Presser for example found evidence that flexibility actually became more standard than a set 9 to 5 schedule (Presser, 2011). This has several repercussions amongst others on health, work-life balance, feelings of stress, etc. This leads to a growing interest to study unconventional working patterns, either concentrating on flexible schedules, or on working beyond typical working hours.

A-typical working hours

In this case testing we focus on flexible arrangements as a result of overtime, flexible part time work, changing shift work, temporary unemployment, etc. These are forms of employment where the companies decide to change the working times of the employees according to the needs of the company (Vander Steene, Sels, Vanhootegem, Forrier, & Witte, 2001). This is problematic because societies are generally organized by a collective rhythm, with general times in the day for work, sleep, eating, etc. (Bluedorn & Jaussi, 2008; OECD, 2010, p. 225; Young, 1988; Zerubavel, 1982, 1985). Working at non-standard times conflicts with this collective rhythm and is, thus, inherently anti-social as it always happens beyond normal hours defined by the societal and cultural tendencies of societies (OECD, 2010, p. 225). This working paper follows the definition of Vander Steene (2001) who states that all overwork, flexible part-time work, changing shift work, variable working hours, flexible yearly timetables and temporary unemployment count as temporal flexibility, or as we call it *subordinate flexibility*. We call this is the aspect of flexible work subordinate because this it implies companies driving up production or increasing efficiency resulting in workers being forced into a position where they do not have a choice to perform less hours or work in other times. In this contribution we concentrate on subordinate interpretation of flexibility.

Job and socio-demographic characteristics

The way researchers and institutions define atypical hours has a great variation in scholarly literature. National and cultural differences can explain this, since all countries have a different legislation, traditions and institutions. Furthermore, researchers often use very different methods, questions, operationalization, etc. to analyze work and that makes a comparison of the results very difficult. Working times are also very complex, they cannot be reduced to a series of simple characteristics but have to be analyzed as a relationship of combined effects of job characteristics and socio-economic background factors.

Job characteristics. Generally, three job characteristics are explicitly linked to subordinate flexibility. Firstly, concerning the sector of employment, researchers very often only make a distinction between private and public sector (Beers, 2000; Giannikis & Mihail, 2011; Kirkland, 2000). According to them there is a higher degree of subordinate flexibility in the private sector than in the government or public sector. However there is evidence that entrepreneurs have a very high degree of flexibility, since this is very much needed to run their own company (Bluedorn & Martin, 2008). Based on the literature we would thus expect a high degree of flexibility with private sector workers and the self-employed group.

Secondly, the labour statute, i.e. full- or part-time employment, is in a relatively unanimous way linked to subordinate flexibility. Part-timers have a higher chance to work in flexible hours or shift systems (Atkinson & Sandiford, 2015; Beers, 2000; Knox & Walsh, 2005) even on the international, European level (OECD, 2000). In this case thus we expect a higher subordinate flexibility with part-time workers than with those working full-time.

Thirdly, occupation seems to be one of the most defying variables. According to Beers (2000), the jobs, which can be conducted independently from begin or end times of the employees are more prone to flexibility. Sales and executive positions can be often conducted beyond standard working times since this kind of work is not connected to a specific time of the day (Beers, 2000; McMenamin, 2007). Labourers form another important group. There is evidence all over the Western world that even though the number of manufacturers shows a declining trend (Golden & Bebreselassie, 2007), they are still the most prone to shift work (Kirkland, 2000; OECD, 2000). However those working in the service sector (Atkinson & Sandiford, 2015; Knox & Walsh, 2005; McMenamin, 2007) and in social sectors such as hospitals or nursery homes are also in a particularly vulnerable position (Montour, Baumann, Blythe, & Hunsberger, 2009; Peerson, Aitken, Manias, Parker, & Wong, 2002).

Socio-economic characteristics. Besides job characteristics, SES is also linked to subordinate flexibility. Firstly, age is very often linked to atypical working times (Beers, 2000; Booghmans, Dessein, Loyen, Stevens, & Vermandere, 2007; Glorieux et al., 2006, 2004; Golden & Bebreselassie, 2007; McMenamin, 2007; Nationale Bank Van België, 2005; Presser,

2011; Scandura & Lankau, 1997). Several research showed evidence that it is mostly the youngest age group who works flexible (Elchardus, 1991; Glorieux et al., 2006, p. 50, 2004, p. 35; Hamermesh, 1995; McMenamin, 2007; OECD, 2010, p. 253). According to Elchardus (1991) younger workers do more evening, night and shift work than older employees. He refers to two main reasons. Firstly, new legislation asking for more flexible work effects the youngest first, since they are the newest people on the labour market. Secondly, young people are physically fitter to work at atypical hours and in a shift system, workers often complain about their physical limits after a certain age.

Secondly, gender plays an important role (Glorieux et al., 2006, p. 45), although, In the case of atypical working hours, there is no unanimity about gender differences. Some research did not find any differences between men and women (Beers, 2000; Breedveld, 1998; Hamermesh, 1995; Presser, 2011). These researchers also used different kinds of research methods with different populations, while Presser (2011) used the Current Population Survey in the US, Breedveld (1998) bases his results on a time use survey in the Netherlands. However, other research did find differences between the two sexes. Vander Steene (2001) states for example that based on the Labor Force Survey, men do more night work than women. According to him it is not just legislations in several countries that (until recently) restricted night work of women but also physical and social constraints that are standing in the way of women working at night (Presser, 2011; Vander Steene et al., 2001). This lack of consensus on atypical times is not just about night work but also about evening work. While Presser (2011) and Beers (2000) claim that there is no difference between men and women, Hamermesh (1995) and Vander Steene (2001) do find several differences. Analyses on weekend work produce the same contradictions between researchers. The research of the European Union shows though that men in high positions are more prone to subordinate flexibility than women, while part–time working women, especially in the service sector, are also in a disadvantaged situation in this sense (Plantenga & Remery, 2010).

Thirdly, the level of education plays a role, although again findings on this matter are far from unanimous. Breedveld (1998) finds in the Netherlands no evidence on differences between high and low level of education connected to atypical times. His research showed however that a larger number of highly educated workers perform work in atypical times when compared to the lower educated but the latter spend a greater proportion of their working times on atypical work. Hamermesh (1995) and McMenamin (2007) in the US and the OECD (2010, p. 266) in several countries however did find evidence of disparities between different levels of education. They stated that highly educated workers spend less time at work in the evening and at night than those in the category of lower educated.

Data

In this case testing we use the combined LFS&TIME data, more specific, the WG and the LFS. The LFS provides us with job characteristics and socio-demographic characteristics as discussed here above. When it comes to the hours worked on a-typical working times, the LFS falls short in detail. Typically, the LFS asks respondents to indicate to what extend they work, for example, in the evening (from 7pm till 11pm) (see Figure 1). The problem is that both an employee that always finishes at 7.30pm and an employee that always works from 7pm till 11pm (because of a night shift) will indicate that they always work in the evening. However, the former works only a very small percentage of his total working hours a-typical, whereas the latter works a very high percentage of his total working hours on a-typical working times. Since the LFS is not able to make this nuance, we will use the WG to determine the amount of work preformed on a-typical working times.

36. Hoe vaak heeft u gedurende de referentiemaand gewerkt op volgende tijdstippen, al dan niet voorzien in de arbeidsovereenkomst?

(ENQ. Overloop lijn per lijn – Slechts 1 enkel antwoord per lijn)

(*)	1	2	3	4	
a) 's Avonds(19 – 23 u)	☐	☐	☐	☐	36b
b) 's Nachts (23 – 5 u)	☐	☐	☐	☐	36c
c) Op zaterdag	☐	☐	☐	☐	36d
d) Op zondag	☐	☐	☐	☐	36e
e) Thuiswerk	☐	☐	☐	☐	37

(*) Verklaring van de gebruikte codes:

1 : nooit;

2 : voor a), b) en e) : minder dan 50 % van de werkdagen;
voor c) en d) : één zaterdag of één zondag;

3 : voor a), b) en e) : 50 % van de werkdagen of meer;
voor c) en d) : twee dagen of meer (zaterdag of zondag);

4 : altijd.

Figure 1: Investigating work at a-typical working hours in LFS

The WG allows this nuanced approach because the WG requests employed respondents to indicate their seven-day work episodes by drawing a line from the starting time to the ending time of each work episode. In order to do so, for every day of the week, the WWG provides a grid of 96 15-min time slots and the instructions hold that respondents exclude (meal) breaks and travelling time (see Figure 2).

Figure 2: Example of the WG

We withheld only those respondents (18 to 64 years) who have reported to be employed in the questionnaire and who reported at least one episode of work in the WWG. This brings the sample size to 2207 respondents.

Analytical strategy

It is important to distinguish between two elements of subordinate flexibility. On the one hand, subordinate flexibility relates to timing, that is, the work performed on atypical working hours, and on the other hand, there is the regularity hereof, that is, the degree to which working at atypical hours is part of a regular working schedule (Glorieux et al., 2007). Such a division requires a definition of atypical working hours and its counterpart, daytime work. In this contribution we define daytime work as work between 6 am and 7 pm and we distinguish further between evening work as work between 7 pm and 10 pm and night work as work between 10 pm and 6 am the next day. All evening, night, and daytime work on Saturday and Sunday is considered atypical. The regularity of work is based on the schedule of the employee. Note that regular and irregular work can both occur in normal or atypical working hours (Glorieux et al., 2006, 2007, 2004).

Using the LFS and WG we constructed six variables that measure the timing and regularity of subordinate flexibility, being *day work* (never/occasionally vs. regularly/always); *evening work* (never/occasionally vs. regularly/always); *night work* (never/occasionally vs.

regularly/always); *work time schedule* (set work schedule, shift work, variable working hours); *Saturday work* (never, occasionally, regularly/always); *Sunday work* (never, occasionally, regularly/always). We will use these variables to (1) explore the dispersion of subordinate flexibility among Belgian employees and (2) construct an indicator of subordinate flexibility and relate this to job and socio-demographic characteristics using MCA. To construct such an indicator we performed a PRINCALS analysis. Firstly we checked which underlying coherence there is between the different questions concerning flexible working times. This statistical method is used because it does not require variables of scale or ratio level to find underlying dimensions, but can also include variables on nominal or ordinal scale (van den Berg, 1988).

Results

Collective labour rhythm

Since the WWG provides information of the timing of work, a first insight in the prevalence of working on non-standard or flexible working hours comes from looking at the percentage of people at work during the day. Figure 3 presents this percentage during the average weekday, Saturday and Sunday and reveals that work is mainly done on weekdays during daytime only. On an average weekday 10% or more of the Belgian workforce is at work between 7 am and 7 pm. On Saturday, within the same period, this percentage only exceeds the 10%-line in the morning and on Sundays it never exceeds 5%. At its morning peak on weekdays, around 10.45 am, slightly less than 72% of the working population is at work (see also Table 1) and at the afternoon peak, around 2.45 pm this drops to little over 64%, which is mainly due to part-time work. Although the timing of the peak moments at weekend days hardly varies from weekdays, the percentages are much lower (see Table 1).

Figure 3 and Table 1 show that Belgium is far from a 24-hours society. Work is done to a large extent during daytime working hours from 8 am until 5 pm on weekdays only. A small percentage of the workforce works on weekend days but still mainly within the daytime timeframe. Evening work and, especially night work is hardly present.

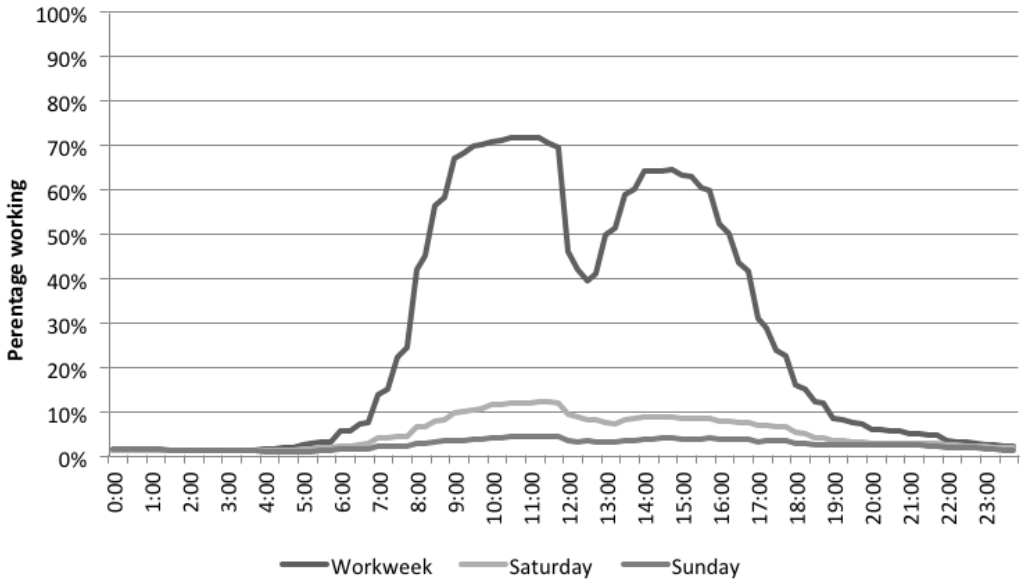

Figure 3. Percentage distribution of work during a weekday, a Saturday and a Sunday. Source: WWG 2013, n=2,207, 18-64 year olds.

Table 1: Peak moments and proportion of work on a weekday, Saturday and Sunday. Source: WWG 2013, n=2,207, 18-64 year olds.

	Weekday	**Saturday**	**Sunday**
Peak moment morning	10.45 am	11.30 am	10.45 am
% working at peak time	71.9%	12.4%	4.4%
Peak moment afternoon	2.45 pm	2.15 pm	3 pm
% working at peak time	64.6%	9.1%	3.9%

Atypical hours

Although evening and night work on weekdays and weekend days is relatively rare, almost one fourth of the employed state that they occasionally work during the evening (see Table 2). Night work is rare, only 1 out of 10 works at least occasionally at this time of the day. However, also here we find that almost 90% works regularly or always during daytime.

Another way to investigate the importance of subordinate flexibility is by looking at the percentage of time worked at different timeframes and comparing this percentage to the total hours available within these timeframes. From Table 3 we derive that 65 of the total

168 hours that make up the week can be considered 'normal' working hours (i.e., from 6 am till 6 pm during weekdays), which is equal to 38.7% of the week. However, almost 90% of the total work is performed within this timeframe. On the contrary, 61.3% of the week can be considers atypical working hours but only 10.6% of the total work is performed on atypical working hours. If we specify atypical working hours, we find that relatively most work is preformed during daytime on Saturday, followed evening work, night work and work on Sunday.

Table 2: Proportion of work on daytime, evening, night during the week. Source: LFS 2013, n=2,207, 18-64 year olds.

	Day work	**Evening work**	**Night work**
Never	0.6%	67.3%	88.9%
Occasionally	11.4%	23.8%	8.2%
Regularly	31.9%	6.4%	1.6%
Always	56.1%	2.4%	1.3%
Total	100.0%	100.0%	100.0%

Table 3: Dispersal of work over different time intervals. Source: WWG 2013, n=2,207, 18-64 year olds.

Time Interval	**Number of clock hours in time frame**	**Proportion of time frame in total time**	**Proportion of timeframe in total labor time**
Evening	21	12.5%	3.3%
Night	56	33.3%	2.9%
Weekend daytime	26	15.5%	4.5%
of which Saturday	*13*	*7.8%*	*3.1%*
of which Sunday	*13*	*7.8%*	*1.4%*
Total atypical work time	103	61.3%	10.6%
Total normal work time	65	38.7%	89.4%
Total (in one week)	**168**	**100.0%**	**100.0%**

Irregular hours

Subordinate flexibility is not limited to working on atypical hours but also includes regularity of working hours. Using information from the LFS, we can distinguish between categories of working schedules: regular schedules, shift work and variable working hours. The first category exists of employed that have set schedules and always work accordingly. Note that a regular schedule not necessarily means working on normal working hours. It could be perfectly possible to have a set schedule but still always work an evening shift (e.g., in the hospitality industry). The second category entails those who have some level of regularity in their work (e.g., working in set shifts) but, therefore, often work on divergent working times. The final category includes those people that have no regular schedule either because it is a result from their labour contract (e.g., a zero-hour contract) or because of a high sovereignty in planning work (e.g., self-employed).

From Table 4 we derive that 70.4% of the respondents has a regular or set schedule. Another 5.7% works by rotating schedules and almost 19% has variable working hours. This latter percentage can be more or less equally divided in those who have self-chosen variable working hours and those who have set variable working hours.

Table 4: Proportion of workforce by working schedule. Source: LFS 2013, n=2,207, 18-64 year olds.

	% of workforce
Set schedule	70.4%
Shift work	5.7%
Two shift system	*2.4%*
Three shift system	*2.3%*
More than four shift system	*1.0%*
Variable working hours	18.7%
Self chosen working hours	*8.8%*
Set flexible working hours	*9.5%*
Changing timetable (block system)	*0.4%*
Other type of timetable	5.1%
Total	**100.0%**

Subordinate flexibility

Almost 30% of the Belgian workforce thus faces a flexible labor system but from Figure 1 and Tables 1-3 we derived that only a small proportion of work is performed on atypical working hours. Subordinate flexibility, thus, clearly falls apart in having atypical working hours on the one hand and facing a shifting or irregular labor schedule on the other hand. In order to explore which professions and jobs are more prone to subordinate flexibility we constructed a composite scale that incorporates both elements described above using a non-linear principal component analysis (see Data & Method section). This scale allows us to gain insight into the dimensions of subordinate flexibility and into the social characteristics of flexible workers. Furthermore such synthetic measure is easier to control in a multivariate analysis that brings together demographic data and job characteristics and shows their underlying connections when it comes to atypical working hours.

The analysis shows very pronounced underlying coherence between the different forms of subordinate flexibility, where all variables strongly load on one dimension (see Table 5) (Cronbach's Alpha=0.828, Eigenvalue=3.223, 53.7% of variance explained). Only work schedule has a relative low component loading which is the result of a high polarization of this variable into on the one hand regular schedules and on the other hand irregular schedules. Table 6 shows the category coordinates of the dimension. It becomes clear that the dimension arranges the work time regimes on an axis of flexibility. On the one side we see the negative coordinates, which represent the most atypical and irregular work (i.e., from regular night work to occasional weekend work). On the other side we find the positive loadings, which represent regular work on normal hours (i.e., from set schedule to no weekend work). Hence the lower or more negative a score on this dimension, the more temporally flexible work is organized.

Table 5: Component loadings for variables of divergent working times. Source: LFS 2013, n=2,207, 18-64 year olds.

	Component Loadings
Day work	0.87
Evening work	-0.91
Night work	-0.55
Work schedule	-0.41
Saturday work	-0.56
Sunday work	-0.93

Table 6: Category coordinates for variables of atypical work. Source: LFS 2013, n=2,207, 18-64 year olds.

	Category coordinates
Regularly/always night work	-3.22
Regularly/always works on Sunday	-2.92
Regularly/always evening work	-2.91
Never/occasionally day work	-2.36
Regularly/always works on Saturday	-1.06
Shift work	-1.01
Variable work hours	-0.53
Occasionally works on Saturday	-0.31
Occasionally works on Sunday	-0.08
Never/occasionally night work	0.10
Set work schedule	0.26
Never/occasionally evening work	0.28
Regularly/always day work	0.32
Never works on Saturday	0.36
Never works on Sunday	0.41

Dispersion of subordinate flexibility

To investigate how subordinate flexibility is dispersed over the workforce, we relate the previous scale to both job characteristics as socio-demographic characteristics by means of a multiple classification analysis. The MCA provides average scores on the scale of subordinate flexibility for each category, both uncontrolled (i.e. univariate mean) and controlled for all other variables in the model (i.e. multivariate mean).

Table 7: Multiple classification analysis of subordinate flexibility by job characteristics. Source: LFS 2013, n=2,207, 18-64 year olds.

		n	Uncontrolled	Eta	Controlled	Beta
Sector	Government	567	0.07	0.17	0.10	0.15*
	Private sector	1,385	0.05		0.03	
	Self employed	195	-0.52		-0.46	
Labor Statute	Full time	1,564	-0.02	0.04	-0.02	0.04
	Part time	583	0.06		0.06	
Type of occupation	Laborers	482	0.04	0.15	0.06	0.14*
	Clerks	441	0.24		0.22	
	Leaders/Sales	285	-0.20		-0.16	
	Service Personnel	441	0.03		0.01	
	Social professions	498	-0.15		-0.17	
Model statistics: F=15.376, df=7, p≤0.001, R^2=4.8%						

We will firstly focus job characteristics only (see Table 7). Self employed face the highest degree of subordinate flexibility, even when controlled for labour statute and type of occupation (-0.46). Being part-time or fulltime employed does not significantly relate to subordinate flexibility. Type of occupation, however, does: leaders and salesmen and social professions face the highest and clerks the lowest subordinate flexibility. When testing for interaction effects (results not shown), we find that any interaction with self-employment yields a significantly and very high score on the scale of subordinate flexibility. Fulltime self employed (-0.56) and self employed leaders and salesmen (-0.87) have highly atypical and irregular hours. Part-time working clerks (0.35) or clerks employed in the governmental sector (0.27) have the least atypical and irregular hours.

Table 8. Multiple classification analysis of subordinate flexibility by job characteristics and socio-demographic characteristics. Source: LFS 2013, n=2,207, 18-64 year olds.

		n	Uncontrolled	Eta	Controlled	Beta

Sector	Government	557	0.07	0,17	0.09	0.15*
	Private sector	1,335	0.06		0.04	
	Self employed	188	-0.52		-.0.46	
Type of occupation	Laborers	454	0.06	0,16	0.15	0.18*
	Clerks	432	0.24		0.22	
	Leaders/Sales	281	-0.21		-0.18	
	Service Personnel	433	0.05		0.03	
	Social professions	480	-0.15		-0.22	
Labor Statute	Full time	1,512	-0.01	0,03	0.00	0.01
	Part time	568	0.07		0.03	
Sex	Man	1,030	-0.04	0,05	-0.06	0.07*
	Woman	1,050	0.06		0.08	
Age	18-24	110	-0.12	0,03	-0.11	0.03
	25-49	1,458	0.01		0.00	
	50-64	512	0.04		0.05	
Education level†	None or lower education	48	0.00	0,08	-0.13	0.11*
	Lower TSO or BSO	168	0.14		0.06	
	Lower ASO	67	0.03		-0.01	
	Higher TSO or BSO	507	-0.08		-0.11	
	Higher ASO	222	-0.09		-0.16	
	Higher education	1,068	0.05		0.10	
Model statistics: F=9.541, df=15, p≤0.001, R^2=6.5%						

†TSO=Technical Secondary Education, BSO=Vocational Secondary Education, ASO=General Secondary Education

Table 8 also includes socio-demographic characteristics. It turns out that controlling for gender, age and education does not alter the controlled mean scores of flexibility for sector, type of occupation and labour statute (the latter remains insignificant). This means that job characteristics are more important in explaining subordinate flexibility that are socio-demographic characteristics. Nonetheless, men, youngsters and higher educated people face the most subordinate flexibility, although the age effect is not significant. Amongst the significant interaction effects, the most striking finding is that even though in general employees in the government and private sector work less flexible than the self-employed, the youngest age group (18-24), on the contrary, works the most flexible in all the sectors (-0.34 in government sector; -0.05 in private sector; -0.3 if self-employed). Typically, also full

time working men (-0.07) work little more atypical and irregular hours than part time working women (0.09).

The variables in this model explain almost 5% of the total variance in subordinate flexibility.

Conclusion

In this study we used two different datasets in order to produce rich data on atypical working times. While the Work Grid gave information on the exact duration of the activities and when they took place during the day, the Labor Force Survey provided survey information on working times, job characteristics and socio-economic background variables. While most researchers use one kind of method or the other for such studies, we used a combination, which provides us with a more reliable view on working times.

The results showed that Belgium is far from a 24-hour economy. Almost 9 on 10 workers performs work in typical times, thus between 6:00 and 19:00, with night work and work on Sunday being extremely rare on the Belgian labour market. Almost 90% of the Belgian worker population works in normal working hours. 70% has a set schedule and almost 6% has to cope with shift work.

Despite the conclusion that working at atypical hours is a rare phenomenon, some groups in society are more prone to work in these hours than others. On a one-dimensional scale we sketched these groups and also gave an indication on which times are considered more atypical than others. This led to the conclusion that night work, shift work or Sunday work regularly is an extreme form of subordinate flexibility while those who always work during day hours, never during Saturday or Sunday and with set schedules are considered to work according to normal, socially expected work regimes.

Analyzing the scale of subordinate flexibility by job characteristics (sector, labor statute, type of occupation) and socio-economic background variables (sex, age, level of education) provided us interesting results. We could firstly conclude that self-employed, social professionals, men and those with a higher ASO have the highest required flexibility when the variables are controlled for each other. Self-employed leaders and sales personnel prove to be the group with a very high subordinate flexibility in comparison with the other groups. The lowest flexibility was found in the groups of private sector workers, clerks, women and the higher educated. Government officials with an educational level of lower ASO are the best off: they have the lowest subordinate flexibility in all groups. All in all, the job characteristics seem to be more important than socio-economic background variables when it comes to flexible working times.

This study proves that the Labor Force Survey and the Work Grid work great together. Formerly research such as the one presented in the article would have only been possible based on time use surveys. These surveys however are very burdensome to the respondent, resulting in a low response rate. By combining the two datasets, we could raise the number of respondents while still being able to conduct a research both on survey and real-time registration data. This is a new method for research on working times but could lead to a more efficient and reliable measure of atypical working times and even work in general.

Bibliography

Atkinson, C., & Sandiford, P. (2015). An exploration of older worker flexible working arrangements in smaller firms. *Human Resource Management Journal*, (May), n/a–n/a. doi:10.1111/1748-8583.12074

Beers, T. M. (2000). Flexible schedules and shift work: replacing the "9-to-5" workday? Flexible. *Monthly Labor Review*, (June), 33–40. doi:10.2307/41845205

Bluedorn, A. C., & Jaussi, K. S. (2008). Leaders, followers, and time. *Leadership Quarterly*, *19*(6), 654–668. doi:10.1016/j.leaqua.2008.09.006

Bluedorn, A. C., & Martin, G. (2008). The time frames of entrepreneurs. *Journal of Business Venturing*, *23*(1), 1–20. doi:10.1016/j.jbusvent.2006.05.005

Booghmans, M., Dessein, B., Loyen, R., Stevens, E., & Vermandere, C. (2007). *Scholarisatie en arbeid: Arbeidsmarkt en aansluiting*. Brussel.

Breedveld, K. (1998). Illusies van een 24-uurs economie: ontwikkelinge in gespreod werk en verschillen in zeggenschap. *Tijdschrift Voor Arbeidsvraagstukken*, *14*(1), 23–36.

Collins, A. M., Cartwright, S., & Hislop, D. (2013). Homeworking: Negotiating the psychological contract. *Human Resource Management Journal*, *23*(2), 211–225. doi:10.1111/j.1748-8583.2012.00200.x

Elchardus, M. (1991). Flexible men and women. The changing temporal organization of work and culture: an empirical analysis. *Social Science Information*, *30*(4), 701–725.

EUROSTAT. (2015). European Union Labour Force Survey. Retrieved July 3, 2015, from http://ec.europa.eu/eurostat/web/microdata/european-union-labour-force-survey

Gershuny, J. (2004). Costs and benefits of time sampling methodologies, 247–252.

Giannikis, S. K., & Mihail, D. M. (2011). Flexible work arrangements in Greece: a study of employee perceptions. *The International Journal of Human Resource Management*, *22*(2), 417–432. doi:10.1080/09585192.2011.540163

Glorieux, I. (1992). *Arbeid en zingeving: een onderzoek gesteund op theoretische logica en tijdsbudget-analyse* (No. 2).

Glorieux, I., Koelet, S., Mestdag, I., Minnen, J., Moens, M., & Vandeweyer, J. (2006). *De 24 uur van Vlaanderen: Het dagelijkse leven van minuut tot minuut*. LannooCampus.

Glorieux, I., Mestdag, I., & Minnen, J. (2007). Temporele flexibiliteit in Vlaanderen. *Tijdschrft Voor Arbeidsvraagstukken*, *23*(4), 321–336.

Glorieux, I., Minnen, J., & Van Thielen, L. (2004). *Moeder, wanneer werken wij? Arbeidsmarktconclusies uit het Vlaams Tijdsbestedingsonderzoek 19888-999*.

Glorieux, I., & Vandeweyer, J. (2002). En er kwamen geen andere tijden... Arbeidstijden en uurregelingen in Vlaanderen op het einde van de 20ste eeuw. In *De arbeidsmarkt in Vlaanderen* (Jaarreeks., pp. 253–265). Antwerpen: Garant Uitgevers.

Golden, L., & Bebreselassie, T. (2007). Overemployment mismatches: the preference for fewer work hours. *Monthly Labor Review*, (April), 18–37.

Hamermesh, D. S. (1995). *Who Works When? Evidence from the U.S. and Germany*. *National Bureau of Economic Research Working Paper Series* (Vol. No. 5208). Retrieved from http://www.nber.org/papers/w5208\nhttp://www.nber.org/papers/w5208.pdf

Kirkland, K. (2000). On the decline in average weekly hours worked. *Monthly Labor Review*, (July), 26–31.

Knox, A., & Walsh, J. (2005). Organisational flexibility and HRM in the hotel industry: Evidence from Australia. *Human Resource Management Journal*, *15*(1), 57–75. doi:10.1111/j.1748-8583.2005.tb00140.x

McMenamin, T. M. (2007). A time to work: recent trends in shift work and flexible schedules. *Monthly Labor Review*, *130*(December), 3–15. Retrieved from http://www.bls.gov/opub/mlr/2007/12/art1full.pdf

Montour, A., Baumann, A., Blythe, J., & Hunsberger, M. (2009). The changing nature of nursing work in rural and small community hospitals. *Rural and Remote Health*, *9*(1), 1089.

Nationale Bank Van België. (2005). *Arbeidsmarkt en loonkosten*.

Nomaguchi, K. M. (2006). Maternal employment, nonparental care, mother–child interactions, and child outcomes during preschool years. *Journal of Marriage and Family*, *68*, 1341 – 1369.

OECD. (2000). *Chapter 5 - Working hours: latest trends and policy initiatives*.

OECD. (2007). Glossary of statistical terms.

OECD. (2010). *How Good is Part-Time Work? OECD Employment Outlook 2010*.

Peerson, A., Aitken, R., Manias, E., Parker, J., & Wong, K. (2002). Agency nursing in Melbourne, Australia: A telephone survey of hospital and agency managers. *Journal of Advanced Nursing*, *40*(5), 504–512. doi:10.1046/j.1365-2648.2002.02407.x

Perling, R., Reed, E., Simons, K., & Zgambo, T. (2004). *A Guide to Job Flexibility at MIT*. Cambridge.

Plantenga, J., & Remery, C. (2010). *Flexible working time arrangements and gender equality*. *Publications Office of the European Union*. Luxembourg. doi:10.2767/29844

Presser, H. B. (2011). Nonstandard work schedules over the life course: a first look. *Monthly Labor Review*, (July), 3–16. Retrieved from http://www.bls.gov/opub/mlr/2011/07/art1full.pdf

Robinson, J. P., Chenu, A., & Alvarez, A. S. (2002). Measuring the complexity of hours at work: the weekly work grid. *Monthly Labour Review*, (April), 44 –54.

Scandura, T. a, & Lankau, M. J. (1997). Relationships of gender, family responsibility and flexible work hours to organizational commitment and job satisfaction. *Journal of Organizational Behavior*, *18*(4), 377–391. doi:10.1002/(SICI)1099-1379(199707)18:4<377::AID-JOB807>3.0.CO;2-1

Targ Brill, M. (2009). *America in the 1980s*. Twenty-First Century Books.

van den Berg, G. M. (1988). Princals voor beginners. Vakgroep Datatheorie en Vakgroep Sociaal-Wetenschappelijk Informatica.

Vander Steene, T., Sels, L., Vanhootegem, G., Forrier, A., & Witte, H. De. (2001). *Feiten en cijfers van flexibiliteit*. Leuven.

Young, M. (1988). *The metronomic society: natural rhythms and human timetables*. Cambridge: Harvard University Press.

Zerubavel, E. (1982). *Hidden Rhythms. Schedules and calendars in social life*. Chicago: University of Chicago Press.

Zerubavel, E. (1985). *The seven day circle. The history and meaning of the week*. Chicago: University of Chicago Press.