Work's Intrusion in Home Affairs

*Evidence on Work–Family Conflict From
a German Nationwide Panel*

Jon Olav Økland and Anup Kumar Saha

Supervisor: Professor Astrid Kunze

Master's Thesis,
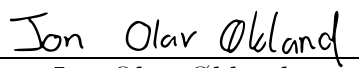MSc in Economics and Business Administration

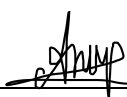## NORWEGIAN SCHOOL OF ECONOMICS

Acknowledgments

Jon Olav Økland

Anup Kumar Saha

Abstract

Recent research in the fields of management and labor economics suggest that multiple work-specific features affect work–family conflict. The intent of this thesis is to extend the empirical evidence on the ramifications of flexibility and work-related communication technology on work–family conflict. In addition, this study analyzes the effects of work–family conflict on employee well-being. The analyses of this thesis are based on the two wave German nationwide Linked Personnel Panel data (employees N = 14,790; companies N = 1,990), from the Institute for Employment Research. To our knowledge, there are no similar studies with such a large and rich sample.

Our contribution to the research topic affirms theories—that employee driven location and time flexibility has significant effect on conflict between work and family. The findings document that contractual home- or teleworking reduces work–family conflict. Furthermore, we observe that adaptable working hour schemes reduce work–family conflict. In accordance with established theory, we find that usage of work-related communication technology during leisure time increases the work–family conflict. Work–family conflict is witnessed to be a solid indicator of reduction in employee well-being. Given the results, we conclude that companies should consider implementing relevant guidelines and labor policies in order to reduce the conflict between work and family life.

Acronyms

BA	Bundesagentur für Arbeit (German Federal Employment Agency)
BeH	Beschäftigtenhistorik (Employee History of the IAB)
CATI	Computer assisted interviews
FDZ	Forschungsdatenzentrum (Research Data Center of the German Federal Employment Agency)
FE	Fixed effects
IAB	Institut für Arbeitsmarkt- und Berufsforschung (Institute for Employment Research)
ICT	Information communication technology
infas	Institute for Applied Social Science
LPP	Linked Personnel Panel
MITD	Mobile Information Technology Device
NHH	Norges handelshøyskole (Norwegian School of Economics)
OLS	Ordinary least squares
WHO-5	The 5–item World Health Organization Well-Being Index

Symbol Explanation

a_0	Intercept parameter (constant term)
a_i	Slope parameter of the independent variable(s)
n	Sample size
N	Population size
R^2	R squared—coefficient of determination
u	Error term
x	Control variables
β	Coefficient—slope parameter of the control variables
δ	Dummy variable

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Chapter 1

Introduction

> A quiet secluded life in the country, with the
> possibility of being useful to people to whom it is
> easy to do good, and who are not accustomed to
> have it done to them; then work which one hopes
> may be of some use; then rest, nature, books,
> music, love for one's neighbor—such is my idea of
> happiness.
>
> LEO TOLSTOY

The Economist has reported worrying findings concerning an increase in anxiety, stress and disengagement at work due to changed perceptions on work–life balance (Green, 2018). The magazine posed the question of whether technology has a part in this trend. Is modern information communication technology (ICT) yet a constraint when maximizing individual utility or well-being? Do flexible working conditions, such as homeworking or flexible working hours, decrease work–family conflict? Can firms reduce employee work–family conflict by conducting audits or certifications on the matter? Is work–family conflict an indicator of employee well-being? This thesis aims to answer these questions by examining the profound German nationwide Linked Personnel Panel (LPP). A distinctively large dataset, remarkably

representative on several employee characteristics, that captures both employer and employee perspectives. To our knowledge a similar dataset is difficult to find, and not found in Norway.

1.1 Background

The standard neoclassical model assumes that individuals maximize utility given certain constraints, such as the allocation of time between work and leisure (Gratton & Taylor, 2004). Richard Easterlin (2001) has used individual's subjective well-being as a measurement of utility or happiness. In line with this research, this thesis uses The 5-item World Health Organization Well-Being Index (WHO-5) as an assessment of an individual's own well-being (World Health Organization Regional Office for Europe, 1998). Following the economic model, individuals choose a work–family conflict allocation that generates the highest well-being possible for them. The optimal allocation of work versus leisure-time differs among individuals and cultures. The problem is solved using the standard economic work-leisure choice model. The use of well-being as a general measurement is an effective way of maximizing utility (Easterlin, 2001), and thus determining what affects employees' utility. It should be taken into account that there are modern problems succeeding the design of this model, such as modern means of communication leads to the domains of work and free time not necessarily being strictly separated.

There are undoubtedly more mechanisms that could affect employee well-being than we can recognize, even so, researchers have found several factors with influence. Blasi and Kruse (2010) have shown that shared ownership in companies, combined with employee decision-making and sophisticated labor policy, increases worker well-being. A recent business ethics paper further displays how abusive supervision negatively influences employee creativity and well-being (Han, Harms, & Bai, 2017). Workers who demonstrate an egoistic and ruthless approach will similarly affect co-workers' well-being harmfully, this by bullying and conflicts (Boddy, 2014).

For most companies, human capital is a crucial input factor in production, making it an important factor to maintain sustainably. Peter Warr (1999) has found that employee well-being is related to higher performance, lower absenteeism, reduced turnover, and the occurrence of increased discretionary work manners. Employee well-being is thus not only a concern for the workers themselves, but also for employers and policymakers.

Since 2003, there has been a dramatic increase in the numbers of research papers focused on work–family conflict, and most of these engage in a conflict viewpoint instead of a balance approach (Chang, McDonald, & Burton, 2010). Some papers have analyzed the effect of work–family conflict on well-being; one such example is an Australian article on work–life conflict by Bell, Rajendran, and Theiler (2012). It demonstrates a stress-related impact on work–life conflict, and further on shows how higher work–life conflict leads to poorer wellbeing amongst the sample. However, Bell et al.'s paper is restricted to academic workers and uses a rather small sample ($N = 139$). Additionally, Nicholas Bloom has shown, together with Liang, Roberts, and Ying (2014), that work schedule flexibility increases happiness and productivity.

Despite all the mentioned papers, there are, to our knowledge, no nation-wide studies across sectors that have used a dataset of the LLP's magnitude. The effect of work–family conflict on employee well-being is, as mentioned above, recognized in several fields. However, this paper's results will provide new insights concerning policy implications in labor economics and executive decisions in management. LPP's large sample size from Germany, a major European economy and country, could make the discoveries of this paper applicable across neighboring nations and in related cultures. A similar result from Norway might only be transferable to the Nordic countries, but the German data, due to the country's centrality in Europe, provides a foundation that is largely convertible. Significant results of this thesis suggest policy implications on a national, labor economic perspective, as well as on a management level.

The goal of this thesis is to investigate how work–family conflict affects employee well-being and what its main drivers are. Hence, this paper investigates and

shows whether work intrudes in home affairs and increases work–family conflict. Do work-related matters interfere in the personal domain? Is there an intrusion due to ICT or inflexibility at work, or is it even partly explained by these two measures?

Currie and Evelin (2011) have claimed that the border between work and leisure is increasingly being blurred due to the means of modern-day communication platforms. There is thus an increasing cost for individuals to make optimal decisions. When work intrudes in home affairs, such as work-related mobile phone interruptions during leisure time, measures to clarify the constraints should be taken. France has recently drawn this conclusion and enforces leisure interruptions from work by law[1] in companies with 50 or more employees (Wang, 2017). The recently adapted law gives the employee a right to disconnect from work, as overuse of mobile phone devices is viewed to cause a number of problems in society. The act was introduced on the basis of a commissioned report from 2015, stating the negative impact of info-obesity on employees' health (France-Presse, 2016). The law gives employees the full right to disconnect from company digital devices in rest periods, in order to ensure the respect of personal and family life. This new French legislation sets a rare precedent on how to address the pressure on the problem of employee work–family conflict.

The former French minister of education Benoint Hamon stated:

Employees physically leave the office, but they do not leave their work. They remain attached by a kind of electronic leash, like a dog. [...] The texts, the messages, the emails: They colonize the life of the individual to the point where he or she eventually breaks down. (Wang, 2017)

This groundbreaking French law illustrates the importance of work–family conflict in employees' well-being, arguing that the difference between working-time and leisure-time can be blurred, in part due to ICT. Germany has also debated this issue, and the former employment minister in 2014 argued for a similar legislation in order to challenge rising levels of work related stress (Stuart, 2014). Several German

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[1] Loi n° 2016-1088 du 8 août 2016, Art. 55(1) of the French Labor Code

companies, as Volkswagen, Daimler, Allianz and Bayer, have implemented polices preventing employees being contacted in outside office hours. Despite this, the German Chancellor Angela Merkel underlined that there was no plan of realizing such a national law (Verhoek, 2014).

Work-related ICT is not the only topic being affected by regulations, and employee flexibility has been an important concern for European legislators. An EU law from 1997 requires member states to remove barriers for employees seeking working hour reduction due to family needs (EUR-Lex, 2016; Gornick & Heron, 2006). This is one type of flexibility policy, implemented to improve the work–family balance among European employees. Nevertheless, the effect of flexibility depends on who enacts it. Anttila, Oinas, Tammelin, and Nätti (2015) have found that employer driven flexibility of working time affects work–life balance negatively, and that they did not find any significant correlation between flexible working location and work–life balance. On the other hand, they argue that further research should account for the difference in employer-driven and employee-friendly work-time and work-place arrangements, and potentially combine these.

We see that the work–family conflict effect depends on the question's phrasing and the drivers. Employer-driven work-time flexibility differs from employee-driven work-time flexibility. Could work–family balance audits or certifications in the businesses help employees decrease work–family conflict, or is a voluntary company specific measure sufficient?

The term "work–life balance" was initially utilized in the 1970s to describe the balance between an individual's work and personal life (Newman & Mathews, 1999). It has in recent years attracted increased interest among academics, politicians and in literature, but the issue is not a new dilemma. Lewis, Gambles, and Rapoport (2007) have argued that the work–life balance question has been in the spotlight for several decades.

In the 80s Greenhaus and Beutell defined work–family conflict as follows:

[A] form of interrole conflict in which the role pressures from the work and family domains are mutually incompatible in some respect. That is, participation in the work (family) role is made more difficult by virtue of participation in the family (work) role. (Greenhaus & Beutell, 1985, p. 77)

In the 1990s Kofodimos (1993) termed work–life balance as "a fulfilling, sound, and beneficial life that incorporates work, play and love". During the first decade of the 21st century, Tanuja Agarwal (2009) stated that work–life balance is the term used to describe those practices at workplace that acknowledge and aim to support the needs of employees in achieving a balance between the demands of their family life and work lives. Work–life balance is being seen as an important part of an employee's daily life, and the employer's responsibility in this matter has been emphasized (T. Agarwal, 2009).

Furthermore, there is a need to consider the connection between company guidelines and work–family conflict, and how firms can locally make changes for the better. Skakon, Nielsen, Borg, and Guzman (2010) have argued that, in order to obtain effective policy intervention, future studies on well-being should link leaders to employee stress. Our thesis paper uses multivariate regression analysis and a linked personnel panel that connects employer to employee to assess the effect a company work–family balance audit can have on its employees. Having a tie between the employer and employee could potentially have significant policy repercussions for employers, making it hypothetically easier for firms to increase the well-being of their employees.

1.2 Research Questions

The research questions of this master thesis explore whether work–family conflict affects employee well-being, and whether company-provided work condition flexibility affects employee work–family conflict. The thesis also researches the possibility of work-related ICT having a positive effect on work–family conflict, and

whether company measures can prevent this. Therefore, we formulate an aim to test the following hypotheses:

Hypothesis 1: Company work-condition flexibility reduces employee work–family conflict.

Hypothesis 2: Company information communication technology usage during leisure time increases employee work–family conflict.

Hypothesis 3: Work–family balance[2] certification or audit, conducted by companies, reduce employee work–family conflict.

Hypothesis 4: Work–family conflict reduces employee well-being.

These hypotheses have alternative null hypotheses that maintain a no effect relationship on all hypotheses (H_0: $\beta = 0$; H_1: $\beta \neq 0$). The objective of this thesis is to determine whether the null hypotheses holds when controlling for relevant demographic and work-related characteristics. At least one of the null hypothesis must be rejected in order for this paper to introduce new insight into work–family conflict or employee well-being. The conceptual model for the empirical analysis of this master thesis can be viewed in figure 1.1.

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[2] IAB questionnaire uses the *work–family balance* term ("Additional survey to the IAB Establishment Panel on Human resource work and corporate culture," 2012, p. 13). This term will be used only when referring to the IAB questionnaire regarding audits or certifications, otherwise the term *work–family conflict* is used.

Figure 1.1. Conceptual Model for Empirical Analysis of Master Thesis
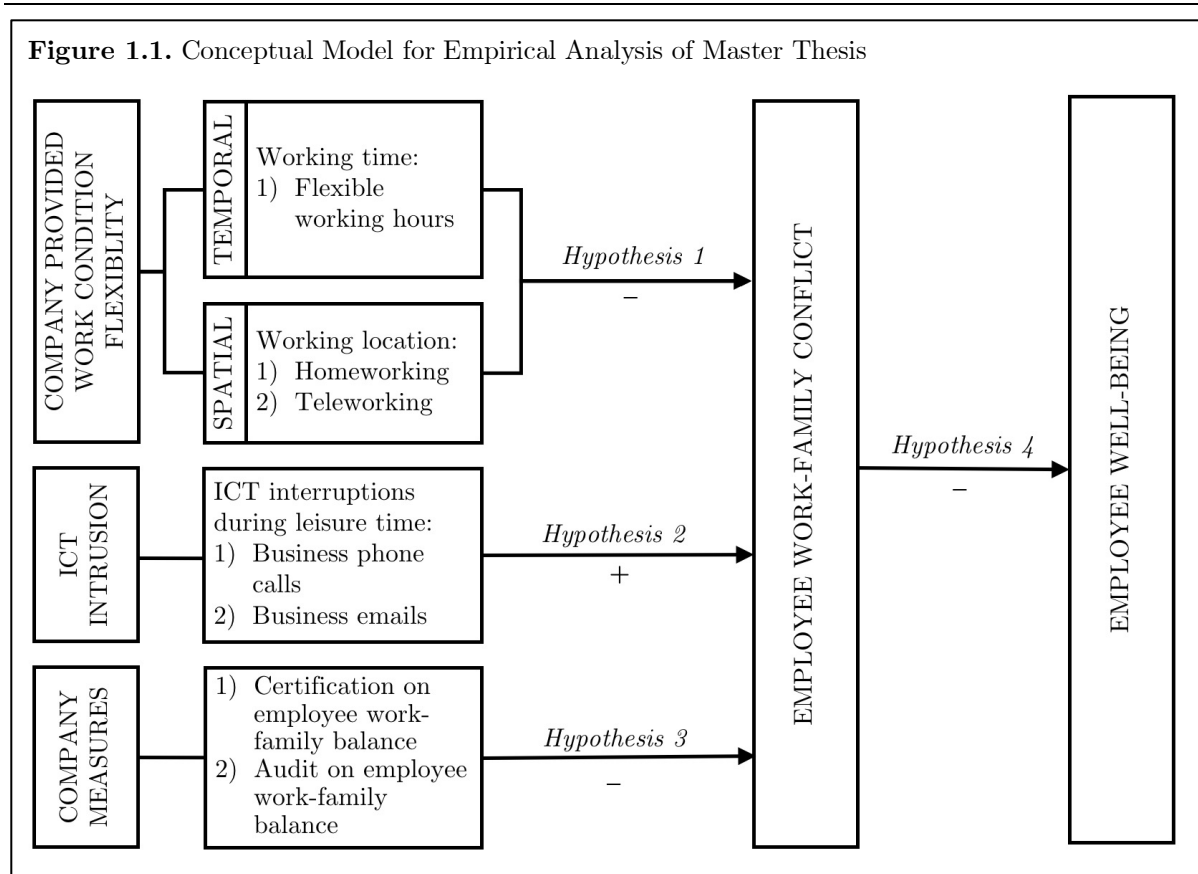
The research objectives are the following:

1. To define relevant theory on work–family conflict and employee well-being

2. To classify appropriate measurement of variables, that are consistent with relevant theory, in order to use the LPP to assert hypotheses

3. To test the relationship between company-provided work condition flexibility and work–family conflict

4. To test the relationship between work related ICT's intrusion during leisure time and work–family conflict

5. To test the relationship between company work–family balance certifications or audits and work–family conflict

6. To examine the relationship between work–family conflict and employee well-being

7. To evaluate, discuss, and state conclusions from the relationships seen in objectives 3, 4, 5 and 6, in order to estimate the applicability of the findings into labor policy on local and national levels

1.3 Outline

The thesis is structured in six chapters. Chapter two presents the literature overview. It summarizes existing literature related to work–family conflict, working time and location flexibility, work-related ICT, and employee well-being. Chapter three contains a detailed description of the data source and the data sample used for the empirical analysis, as well as descriptive statistics. Chapter four presents our empirical approaches to test the hypotheses. Chapter five presents the empirical results on each of the four hypotheses, which are empirically tested and presented separately. Finally, chapter six contains the discussion and conclusion. We discuss the results of our empirical analysis in light of the literature review, comparing and contrasting with previous researches. At the end we provide some recommendations based on our findings.

Chapter 2

Literature Overview

> By working faithfully eight hours a day, you may
> eventually get to be a boss and work twelve hours
> a day.

<div align="right">ROBERT FROST</div>

In this chapter, the theories relevant and applicable to the analysis of the research questions are presented in chronological order. The research articles and papers, referred to in this chapter, constitute the theoretical framework for assessing the meaning and scale of measurement for work–family conflict, working time and location flexibility, work-related ICT, and employee well-being.

2.1 Work–Family Conflict

The issue of work–family conflict has received increasing attention from policy makers, organizations and employees worldwide. It is regarded as an important workplace issue for both employees and employers (Sar, Mohanty, Kar, & Dash, 2017). This paper defines work–life balance in accordance with S. Agarwal and Lenka (2015), as "means maintaining balance between [the] work and life style of an individual." Work–family conflict stands in opposition to work–life balance, and it has been

characterized as "a form of interrole conflict in which the role pressures from work and family domains are mutually incompatible in some respects" (Greenhaus & Beutell, 1985, p. 77). While Greenhaus and Beutell describe conflict as something that moves in both directions, this paper focuses only on the conflict induced by work and does not evaluate family-prompted conflict that affects the work role. In this paper work–family conflict is therefore defined as the commitment in the family role made more difficult due to the involvement in the work role, in accordance with the definition of Greenhaus and Beutell (1985).

Hobsor, Delunas and Kesic (2001) have shown that reduced work–life balance can lead to increased stress and stress-related illnesses, lower life satisfaction, family violence, divorce, increased substance abuse, and problems for the children. Ken Roberts (2007) doubted a "one size fits all" solution to increase work–life balance, and thereby reduce conflict, although for some employees reduced working-time can be a solution. Timsal and Awais (2016) likewise disputed such a universal policy. Even so, Roberts argued that regulation regarding this issue should be reconsidered, and that flexibility across all income levels might provide a resolution (Roberts, 2007). Hall and Richter (1988) proposed several organizational measures to improve the work and home balance, including making working hours and location more flexible. White, Hill, McGovern, Mills and Smeaton (2003) agreed with this assessment, and proposed "'family-friendly' employer policies, such as flexible working hours, homeworking and state assisted nursery places" (p. 176).

2.2 Spatial and Temporal Flexibility

Following Hall and Richter's (1988) thoughts, we examine work–family boundary flexibility. Is employee driven boundary flexibility a solution to reduce the work–family conflict issue? We followingly review two theoretical options on boundary flexibility—flexible location and flexible hours. Anttila et al. (2015) stated that the organization of times and places of work are key elements of working conditions and

define employees' possibilities concerning work and other life spheres. Regarding the quality of work and life the focus is increasingly on flexibilization of working places and working times (Messenger, 2011).

According to Hall and Richter (1988) role transition flexibility is defined as to what degree flextime and flexplace are allowed in order to work at home. Ashford, Kreiner and Fugate (2000), redefined it to "the degree of which the spatial and temporal boundaries are pliable" (p. 474). Flexibility at the workplace in general can be divided into two types, spatial and temporal. Temporal flexibility is related to time or working hours; an example is adaptable working hours. Spatial is flexibility, meanwhile, relates to work-space. An example of spatial flexibility is allowing employees to work from home.

The standard industrial work-time model is comprised of five working days, eight hours per day, totaling 40 work hours per week. Following this standard model, there are free evenings, weekends, and annual holidays. However, spatially and temporally flexible working conditions are increasingly being used instead of this standard traditional model. (Craig & Powell, 2011; Fagan, Lyonette, Smith, & Saldaña-Tejeda, 2012; Rapoport & Le Bourdais, 2008; Supiot, 1999).

The effect of flexibility depends on many aspects; whether the employee uses it during normal working hours, corporate culture, and self-discipline (Bloom et al., 2014). It also depends on who imposes it, whether it is the employer or employee. Employees with nonstandard work-hour schedules who do not have fixed working hour contracts are inclined to have poorer work–life balance (Fagnani & Letablier, 2004). Steve Fleetwood (2007) found that employer-driven flexible working hours, such as working in shifts, reduces work–life balance. Employer-driven flexibility thereby is proven to reduce work–life balance. In contrast, our hypothesis considers employee-driven flexibility, in accordance with Maruyama and Tietze (2012), who have proposed a positive effect of working hours flexibility on work–life balance. Tausig and Fenwick

(2001) have proposed a different theory; they suggested a better perceived work–life balance when employees have temporal flexibility, but in reality, it has no real effect.

2.3 Work–Related ICT Intrusion

The advancement of work-related usage of ICT has made researchers reconsider how to define the work and nonwork time periods of employees (Dén-Nagy, 2014). Mental barriers, as well as physical borders dividing the domains of work and home have faded away. Already in 1988, Hall and Richter found that people prefer a psychological separation between work and home (Hall & Richter, 1988). Electronic technology allows work to be done any time at any given location. An Australian study on 24 academics found that the respondents experienced that ICT provided a crucial flexibility, but at the same time their working hours extended into family and home life (Currie & Eveline, 2011). Currie and Eveline (2011) have shown that in recent decades, the border between employees' work and nonwork domains has increasingly blurred. Hislop and Axtell (2009) added that the development of sophisticated ICT has contributed to this phenomenon. In addition to that, Reyt and Wiesenfeld (2015) showed that mobile technologies are increasingly wearable, and

Figure 2.1. Employees' Movement Between Work and Nonwork Domains

Figure 2.1. Model of mobile information technology devices and employees' movement across the border between the work domain and nonwork domain. Adapted from "What Happened to the Border? The Role of Mobile Information Technology Devices on Employees' Work–Life Balance" by T. A. Adisa, G. Gbadamosi, and E. L. C. Osabutey, 2017, *Personnel Review, 46(8),* p. 1656.

almost permanently on, which makes it difficult for employees to keep role boundaries of home and work separate and distinct.

Figure 2.1 was adapted from Adisa et al. (2017) to visualize two different employee domains—the work domain and nonwork domain. There exists a border between these through which an employee moves from the work to the nonwork domain, and vice-versa.

In this recent study, Adisa et al. (2017) have stated that the continuous emergence of sophisticated ICT has changed the way work is conducted, as well as the structure of employees' nonwork lives. Because of the ambiguity regarding clear corporate policy and guidelines, the border between work and nonwork domains is being blurred. It ultimately leads to employees being able to attend to family issues at work, and vice-versa. As a result, the movement across the home and work border increases significantly. The issue concerns employees' border crossing and border management. ICT has led to enhanced productivity and work performance, but can also challenge employee work–life balance (Adisa et al., 2017). This is supported in earlier research by Ken Roberts:

> Staff who are given mobile phones with which they are able to make contact with colleagues, bosses or subordinates at any time of their own choosing are also vulnerable to being contacted by any of these parties at times that are inconvenient for the recipient. Even though their hours spent actually working may not be exceptionally long, such staff may feel unable to "switch off" completely for long unbroken periods. (Roberts, 2007, p. 341)

Cath Sullivan (2012) has argued against spatial flexibility, stating that the entry of work affairs into the private sphere may affect family relationships negatively. However, respondents in Adisa et al. (2017) emphasized the flexibility opportunities generated due to ICT-usage at the workplace. Technology allowed employees to work anywhere, and respondents stated that office works are regularly being carried out on transit, in cafés, at home, or somewhere else. The authors argued that the

technological advancement of the 21st century has made it difficult to distinguish between employees' work time and nonwork time (Adisa et al., 2017).

One major argument following Adisa et al. (2017) is that ICT could be perceived and found to have both positive and negative effects in maintaining employee work–life balance. ICT makes work easier for employees and allows them to work "on the go." Nonetheless, most of the respondents in the study reported an extension to their contracted working hours. As a result, the extended working hours created an imbalance in the respondents' work and nonwork lives. However, the respondents also described ICT's ability to help them achieve work–life balance, due to the flexibility it induces.

2.4 Company Measures on Employee Work–Family Conflict

Research findings demonstrate that appropriate firm policies on work–life balance may alleviate some of the negative impacts of employee work–family conflict ("More work and less play," 2018; Skjølsvik & Breunig, 2017). Literature by Potoski and Prakash (2005) provided evidence that voluntary programs can be effective and good measures to implement, in order to achieve desired change. Even though previous research on work–family conflict has not included audits as a suggested measure, we know that it has been effective with regard to audit on energy-saving in Germany. Fleiter et al. (2012) found that audit on energy efficiency enhanced energy-saving. Following this, our hypothesis is that companies introducing certifications or audits on work–family balance could reduce employee work–family conflict.

This thesis thus uses the certification and audit as suggested firm policy implementations, in order to improve employee work–family conflict. The LPP questionnaire includes several questions regarding corporate culture, asking, for example, whether the firm voluntarily participates in audits or certifications in different aspects. This thesis tests the theory that such measures focusing on work–

family balance reduces employees' work–family conflict. Even if the respondent firm was not asked to emphasize in what way and to what degree they perform audits or certifications on work–life balance. However, they are still useful as a measure. What performing an audit or certification entails therefore depends on the respondent.

2.5 WHO-5—Employee Well-Being

The American economist Richard Easterlin (2001) argued that well-being is an equivalent measurement of individual utility. The well-being of workers can therefore be used in the utility maximization. Hence, work–life allocations should be based on the enlargement of well-being. Using this measurement in a research field such as labor economics is therefore both possible and useful to determine the effect of work policies on employee well-being.

A recent study by Wu et al. (2016) on construction workers has found that improving work flexibility and organizational support can increase employees' satisfaction and work performance from a work and family life point of view. Earlier research on the topic of employee health and well-being clearly identified that working evenings, nights, or on weekend is stressful for employees and can therefore have a negative impact on their physical and psychological health and well-being (Costa, Sartori, & Åkerstedt, 2006).

Taking managers' implementation measures to improve work–family conflict into consideration, Skakon et al. (2010) encouraged further researchers to use a linked employee-employer dataset, in order to address employee well-being. A study done by Joyce et al. (2010) has suggested that flexible working conditions, such as self-scheduling, are likely to impact health and well-being positively. Some literature indicated the positive impact that work–life balance has on well-being (Dén-Nagy, 2014; Lin, Nguyen, Walters, & Gordon, 2018), while Delaney, Doyle, McKenzie, and Wall (2009) have shown that education level and social capital influence well-being.

This master thesis thus uses mental well-being among workers as a measure that indicates utility or happiness. In order to assess the employee well-being, we use the 5-item World Health Organization Well-Being Index (WHO-5), which consists of five simple questions. Topp, Østergaard, Søndergaard, and Bech (2015) maintained that the result has a high clinimetric legitimacy and at the same time is a sensitive and precise instrument for displaying depression. This index was first presented by the WHO in 1998 at the meeting in Stockholm as a measure of well-being in primary health (World Health Organization Regional Office for Europe, 1998), and it has since then been used in a number of studies (Kvorning, n.d.). It has been translated into 30 languages, and Topp et al. (2015) have argued that the WHO-5 can be used as an outcome measure of a person's well-being, and is not limited to the field of psychology. The WHO-5 is measured on a scale of 0 to 100; 0 indicates worst imaginable well-being and 100 indicates the best imaginable well-being.

Well-being was used as a subjective assessment of individuals' own well-being. All questions are phrased positively, and the WHO-5 can be, and indeed has been used, as another term for mental health (Topp et al., 2015). Heun, Bonsignore, Barkow, and Jessen (2001) have underlined the validity of the index, both internally and externally, and demonstrate it to be a useful instrument. The LPP practices the exact same setup as the WHO.

Figure 2.2. WHO-5 Score—Distribution in the LPP
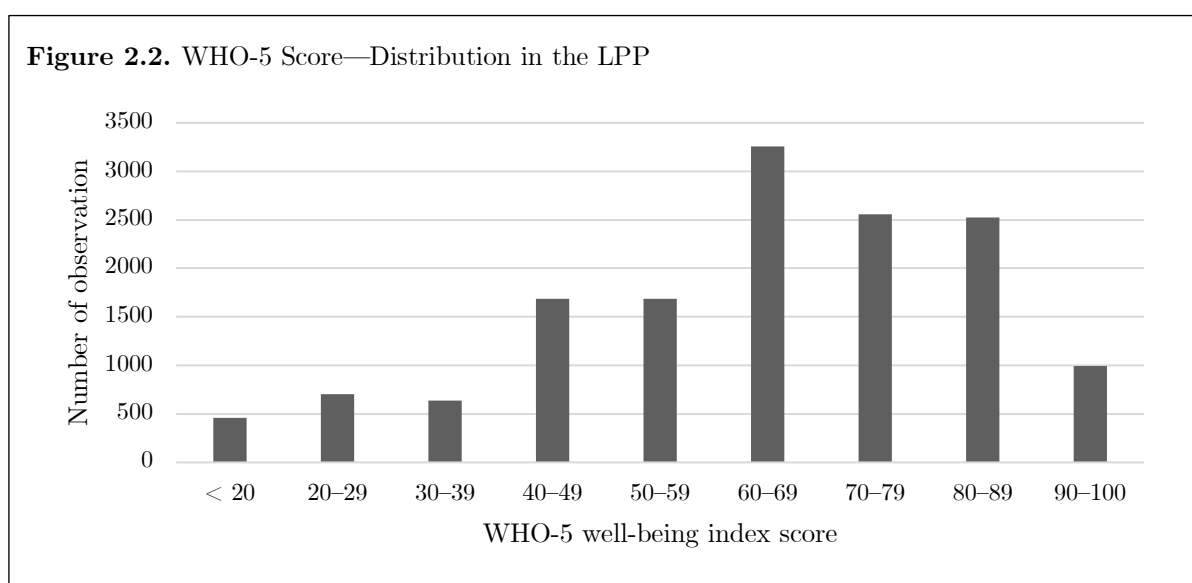
In Denmark, we see that the mean well-being score was 70 (Topp et al., 2015). In another study from West Scotland conducted in 2007 , the average outcome of the participants was 69, insinuating that a normal mean value should be around 70 (Wade et al., 2007). A score below 50 has been proven to correlate with a significantly higher mortality rate compared to people scoring above 50 (Topp et al., 2015). A 10% change signifies a substantial variation in well-being (Psychiatric Research Unit, n.d.).

As seen in figure 2.2, the majority of employees in LPP reported a well-being score between 60 and 89. Fifty-seven percent the of the respondents are in this segment. The average WHO-5 score of the respondents in the LPP was 63, which is considerably lower than what has been found in the other studies done in Denmark and West Scotland. Nevertheless national differences such as happiness scores can indicate general differences among countries (Helliwell, Layard, & Sachs, 2013).

Delaney et al. (2009) have also shown that the mean German WHO-5 value is considerably lower than in Denmark. According to their finding the WHO-5 mean value in Germany was approximately 62, and thereby close to 63, which was the average WHO-5 value in the LPP. Despite the LPP displaying WHO-5 results, that are considerable lower than average findings from Denmark and West Scotland, the LPP findings are consistent with the findings from Germany (Delaney et al., 2009). Therefore, the employee well-being data in the LPP is reliable.

Chapter 3

Data Description

> Balance is not better time management, but better boundary management. Balance means making choices and enjoying those choices.

<div align="right">BETSY JACOBSON</div>

The database of this thesis is of considerable size ($N = 14{,}790$), particularly compared to similar studies concerning work–family conflict (Bell et al., 2012; Bloom et al., 2014; Hill, Hawkins, Ferris, & Weitzman, 2001). The number of firms that participated in the LPP is also large. In the first wave 1,219 German establishments were interviewed, that's 1.9% of the total amount of establishments in Germany (Broszeit, Grunau, & Wolter, 2016b). Of the 1,219 establishments, 771 were successfully interviewed in the second wave (Broszeit et al., 2016b). Hence, the LPP dataset, which consists of both employees and employers, provides considerable foundations for analyzing relationships between the variables relevant for the thesis topic.

3.1 Linked Personnel Panel

This study uses the LPP waves 2012/13 (Bellmann, Lutz et al., 2015; Broszeit & Wolter, 2015a, 2015b; Dickmann, Christian, Gilberg, Reiner, Schröder, Helmut, & Schütz, Holger, 2015; Fischer, Janik, Müller, & Schmucker, 2009; Gensicke & Tschersich, 2015) and 2014/15 (Broszeit, Grunau, & Wolter, 2016a, 2016b; Schütz, Gilberg, Knerr, Kellerhoff, & Dickmann, 2016a, 2016b). Data access was provided via on-site use at the Research Data Centre (FDZ) of the German Federal Employment Agency (BA) at the Institute for Employment Research (IAB) and subsequently through remote data access. This thesis's project number, assigned by the FDZ, is 1525. The data was composed by the IAB, the University of Cologne, the German Federal Ministry of Labour and Social Affairs, TNS Infratest Sozialforschung, the Institute for Applied Social Science (infas) and the Centre for European Economic Research. The main source for this thesis is the LPP, which contains a linked employer-employee dataset on multiple fields, some of which are used in this paper.

The establishment panel dataset is stored at the IAB in Nürnberg Germany and was gathered in multiple waves, two of which are part of this research paper. This longitudinal dataset contains both cross-sectional and time-series variables. Most of the variables are included in both time intervals, supplying an option of fixed-effects estimations if desired.

The employer survey for the first wave was conducted between July and October 2012, while the employee survey was conducted between December 2012 and April 2013 (Broszeit & Wolter, 2015b). The second wave employer survey was collected between June and October 2014, and the employee results are from March until August 2015 (Broszeit et al., 2016b). An overview of the data used is provided in table 3.1.

TNS Infratest Sozialforschung was responsible for conducting, checking and weighting the employer survey, while the employee survey is based on the Employee

Table 3.1

Description of the Linked Personnel Panel

Wave	Timeframe	Sample size
Wave one employer survey	July 2012–October 2012	1,219 establishments (with 50 or more employees)
Wave one employee survey	December 2012–April 2013	7,508 employees
Wave two employer survey	June 2014–October 2014	771 establishments (with 50 and more employees in the processing industry and in the service sector)
Wave two employee survey	March 2015–August 2015	7,282 employees
Total	July 2015–August 2015	employees $N = 14{,}790$ and employers $N = 1{,}990$

Note. Adapted from "LPP – Linked Personnel Panel – Quality of work and economic success: longitudinal study in German establishments (data documentation on the second wave)," by S. Broszeit, P. Grunau, and S. Wolter, 2016b, FDZ-Datenreport 06/2016 (de); "LPP – Linked Personnel Panel – Quality of work and economic success: longitudinal study in German establishments (data documentation on the first wave)," by S. Broszeit, and S. Wolter, 2015b, FDZ-Datenreport 01/2015 (en).

History of the IAB (BeH). The BeH consists of all "employees subject to social insurance contributions and those in marginal employment" (Broszeit et al., 2016b). For the first wave, data checking and adjustment of the employee data were preliminarily done by computer assisted interviews (CATI) during data collection, and finally by infas. The data checking was conducted in order to ensure that values were within the pre-determined range (Broszeit et al., 2016b). Any general correction of the data was done prior to receiving results from FDZ and was therefore not conducted as a part of this thesis. A detailed explanation of the sampling procedure can be found in the respective FDZ-Datenreport of two waves (Broszeit et al., 2016b; Broszeit & Wolter, 2015b).

Most of the variables included are in both waves, but some additional questions were added to the second wave; only one of these was relevant for this thesis topic. The variable explaining whether ICT turns free time into working time was the only relevant variable that occurs solely in the second wave from 2014.

The reader should take into consideration that some of the variables have limitations, because they are self-reported. Therefore, it might be subjected to measurement error. There is often a discrepancy between actual number of hours worked and claimed hours worked. People tend to exaggerate when self-reporting (Roberts, 2007), and we have no verification that employees participating in LPP self-

evaluate working time equal to the actual amount of hours worked during a week. Even so, Roberts (2007) has shown that respondents who claim working longer hours actually do so, but not in the magnitude they state. Thus, Roberts' findings do not discredit the usage of self-evaluated types of data, such as employees' response in the LPP, but insinuate that their precision might be limited.

3.2 Data Access

In order to access to the LPP dataset, we went through a formal procedure that involved an application and contract signing. The topic of this empirical study was decided following the consultation with researchers at the IAB and FDZ during an onsite visit in Nürnberg from January 29th to February 9th.

After deciding the topic, a formal application for access to the data was submitted to the German Federal Ministry of Labour and Social Affairs. After several weeks, access to the data was granted on the condition of signing a formal legal contract with the IAB and the Norwegian School of Economics (NHH) representing the authors of this thesis. The formal, binding legal contract between IAB and NHH was signed by involving the authors of this thesis, head of the Economics department, Professor Eirik Gaard Kristiansen and the thesis supervisor, Professor Astrid Kunze. After the legal contract was signed and received by the authorities in Nürnberg, access was granted. Both authors of this thesis were provided with separate and exclusive user accounts and login details, that were sent from the IAB by mail. This process took a considerable amount of time.

3.3 Data Preparation

Analyses conducted in this thesis were done with the Stata software, via the remote access portal JoSuA, provided by the FDZ. Stata do-files were uploaded to JoSuA using a required do-file set up devised by the FDZ. Results from regressions

Figure 3.1. Conceptual Model of the LPP Setup
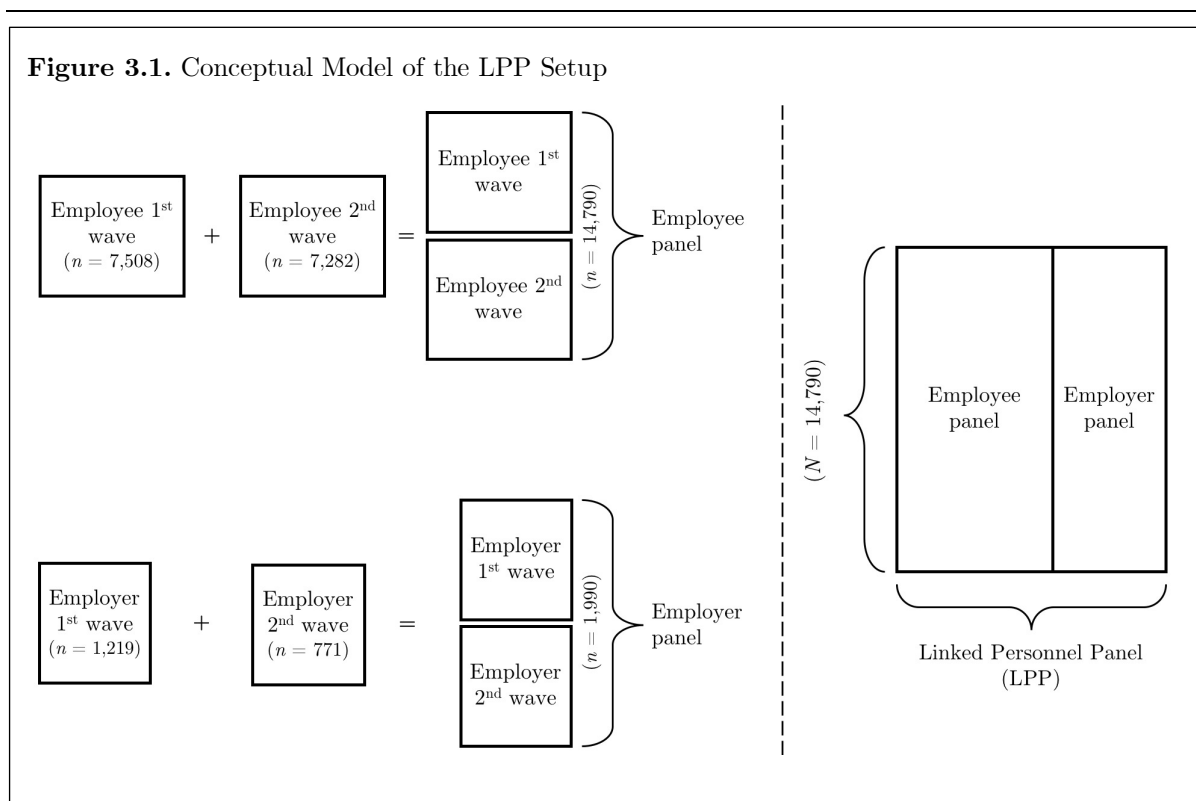
and other analyses were then returned in form of log-files immediately or several days later, depending on the manner of submission and the need for censoring. The FDZ provided us with two alternative modes of output, internal and publication. In order for us to present the results the FDZ required us to submit the Stata do-files in publication mode.

Prior to the undertaking of the regression analysis of the LPP, the data had to be coordinated to the relevant linked panel. The process of doing so is displayed in figure 3.1. The two waves of the employee survey were appended to each other, combining the datasets vertically. The same was done to the two waves of the employer survey results. The employer panel of 1,990 respondents was thus merged with the employee panel of 14,790 respondents, using the establishment-identifier number. The questionnaire answers from the employers were added to the employees' entities, by using their common company-identifier number, and thus becoming the Linked Personnel Panel. The main work of analyzing the data was conducted by remotely accessing the LPP data through JoSuA. An extensive portion of the effort

and time put into this master thesis was done in the process of remotely accessing and analyzing the LPP data.

JoSuA did not provide access to the raw data but returned results from uploaded Stata do-files in form of log files. The LPP log files are the basis for all of the figures, tables, numbers and analyses in this empirical study. Any statistics provided in this master thesis are from the LPP regressions and output, if not otherwise marked. As a second measure, in order to conduct the analysis more efficient, we created a "fake" dataset with all relevant variables. Due to job limitations as well as the time-consuming process of awaiting JoSuA results, the "fake" dataset became a useful tool in order to test the Stata do-file structure and set-up.

When answering to the LPP questionnaires, the respondents had the possibility of not to replying to any specific question. Observations from respondents who did not answer the relevant questions for the included variables were removed from the sample. If any respondent did not answer all the questions in either the WHO-5 well-being index or the work–family conflict scale, his or her responses to all other questions within the respective scale were removed. This was done in order to establish a scale between 0 and 100 that was valid for all respondents.

3.4 Descriptive Statistics

Broszeit et al. (Broszeit et al., 2016b) found the LPP dataset to be reliable, accurate, and of high quality. Therefore, we believe that the thesis is based on a dataset that is representative and overall has little measurement error. Further on, the LPP dataset is rich and large compared to other datasets used in studies on similar topics. Although all the sample attributes are not equally representative of the national population, for instance males being clearly overrepresented in the LPP population, it still can be used. Characteristics—such as the amount of employees working in shifts, which is 31% in the LPP and similarly 31% on the European level (Fagan et al., 2012)—demonstrate that the nationwide panel is relevant to addressing

this thesis topic. The fact that the national characteristics in some cases not are parallel to LPP does not invalidate their usage. The reader should nevertheless consider the descriptive statistics into consideration when interpreting the results. All relevant variables included in this thesis are displayed with waves, number of observations, range, mean value, and standard deviation in table 3.2.

Table 3.2

Descriptive Statistics of the Variables in the LPP

Variable	Wave	N	Minimum	Maximum	Mean	Standard deviation
Independent and dependent variables						
Work–family conflict	1 & 2	14,587	0	99	32.22	26.21
Well-being index	1 & 2	14,496	0	100	62.79	20.49
Work interference with family life	1 & 2	14,602	0	5	1.24	1.19
Work makes it difficult to fulfill family responsibilities	1 & 2	14,707	0	5	1.28	1.22
Job strain makes family responsibilities difficult to fulfill	1 & 2	14,607	0	5	1.42	1.21
Home-/teleworking agreed on by contract	1 & 2	2,657	0	1	.18	.38
Flexible working hours	1 & 2	14,617	0	1	.47	.50
ICT frequently turns free time into working time	2	7,106	0	4	0.73	1.07
Business phone calls or email interruption during leisure time	1 & 2	14,601	0	4	1.03	1.13
Firm certification or audit on work–family balance	1 & 2	11,225	0	1	.11	.31
Demographic variables						
Age	1 & 2	14,790	18	69	46.07	10.59
Gender (1 = male)	1 & 2	14,790	0	1	.72	.45
Male*	1 & 2	10,596	-	-	-	-
Female*	1 & 2	4,194	-	-	-	-
Children under 14 in household	1 & 2	14,580	0	6	0.39	0.75
Household size (persons)	1 & 2	14,580	1	13	2.80	1.22
Partner lives in same household	1 & 2	12,285	0	1	.92	.27
Work-specific variables						
Hours worked at home in a week	1 & 2	14,223	0	60	0.90	3.60
Work from home: > 10 (h/week)	1 & 2	14,790	0	1	.06	.23
Work from home: > 20 (h/week)	1 & 2	14,790	0	1	.04	.20
Work from home only during normal working hours	1 & 2	14,790	0	1	.02	.13
Actual working hours more than contracted	1 & 2	13,375	−50	50	3.71	5.83
Number of persons managing	1 & 2	14,605	0	3,120	7.74	54.84
Actual working time (h/week)	1 & 2	13,681	1	90	40.68	8.49
Working in shifts	1 & 2	14,617	0	1	.31	.46
Clear role communication	1 & 2	14,587	0	4	2.85	1.02
Managing more than 10 employees	1 & 2	14,790	0	1	.13	.33

Note. Data from the Linked Personnel Panel (LPP), waves 1213 and 1415.

*Male and female are not individual variables but composed the gender variable.

Figure 3.2.
LPP Sample Year

Figure 3.3.
Gender—Distribution in
the LPP

Figure 3.4.
Living with Partner—
Distribution in the LPP

■ 2012 ■ 2014   ■ Male ■ Female   ■ Yes ■ No
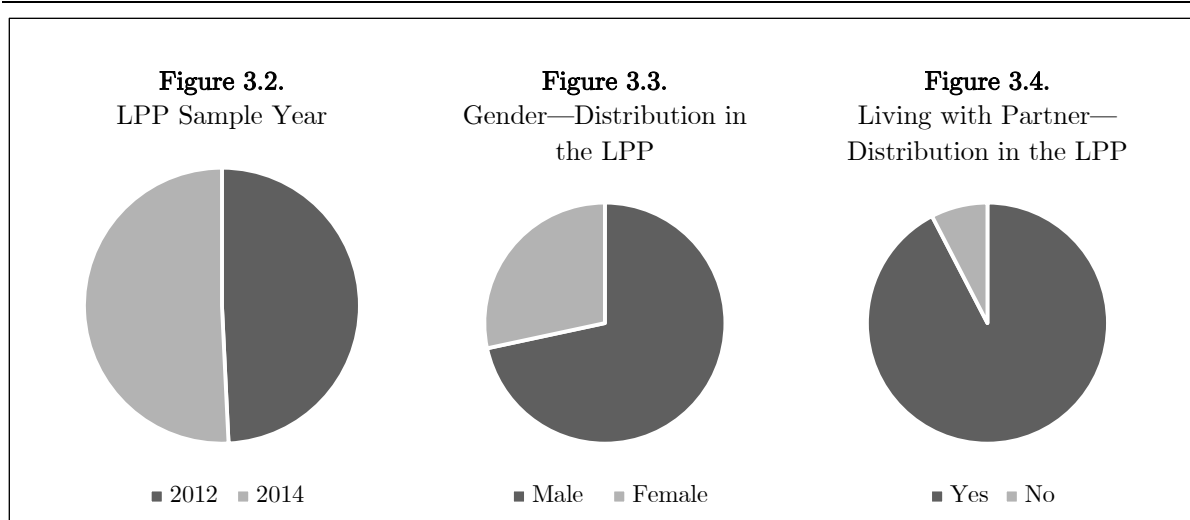
The first wave has slightly more observations compared to the second, with 227 additional respondents. The total quantity of observations consists of a two-time repeating response for most entities, except for the additional 227 people in the first wave. As visualized in figure 3.2, the decrease in in observations from the first to second wave is almost not visible, and therefore had a minimal effect on the total sample.

Demographic aspects taken into account in regressions and when describing the sample were the gender of respondents, age, household size, whether children lived in the household, and whether the respondent was living with a permanent partner. These family- and individual-specific characteristics show how the LPP reflects the general population. It also is of importance when controlling for demographic attributes.

Most respondents lived with a partner, as can be seen in figure 3.4; in fact, 92% of the LPP population lived with their permanent partner. In figure 3.3, the gender distribution is simply displayed. The gender pie-chart indicates that approximately two-thirds of the employee in the LPP are male, a factor that possibly impacts the results if not controlled for. Male employees comprised 54% of the German national workforce (OECD, 2015), which is a considerably more equally gender distributed than the LPP population, in which 72% are male. Nevertheless, IAB does not give any explanation for why males dominate the LPP observations.

Figure 3.5. Household Size—Distribution in the LPP
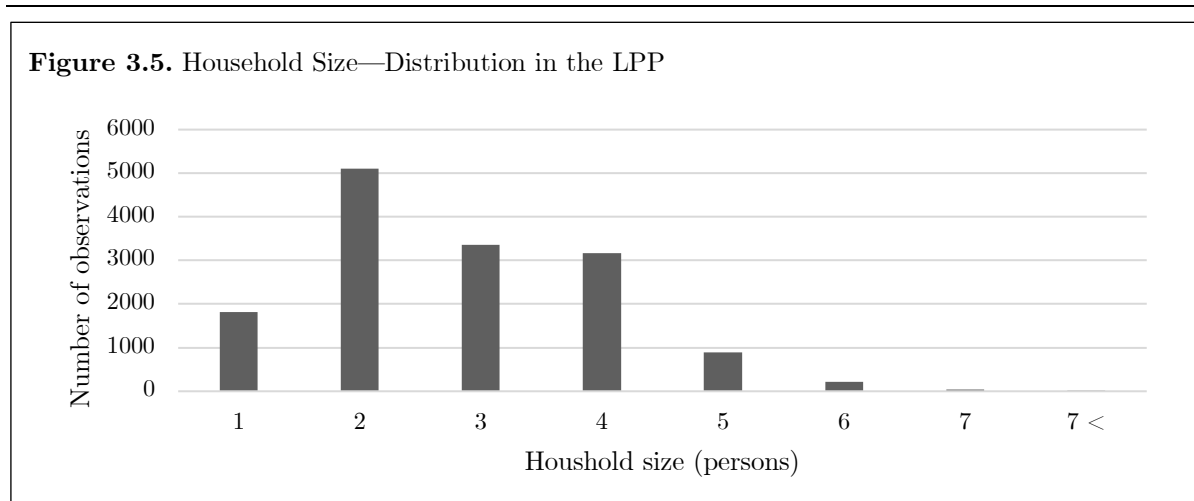
Considering the household, displayed in figure 3.5, a clear majority of the respondents lived in a home consisting of between two and four people. The panel also includes respondents who lived alone, and some together with as much as 12 other people. As displayed in figure 3.6, the linked personnel panel has a concentration of employees with an age ranging between 40 and 59 years. The other age groups are represented with smaller proportions.

Figure 3.7 depicts the distribution of actual hours worked during a week. The reader should consider that the high number of reported hours worked might be overstated by individuals because it is self-reported (Roberts, 2007). Even so, the LPP mean, displayed in table 3.2, do not differ much; the mean number of hours worked during a week is 40.68, while the median is 40 hours a week. In fact, the LPP working hours statistics are similar to the national statistics. In Germany, the average collectively agreed working-time was approximately 37.5 working hours per week in 2012 and 2014, while the mean actual working hours during a week were slightly above 40.5 (Cabrita & Böhmer, 2016), fairly close to the LPP population. The findings show that the LPP in several characteristics is precisely samples the general population. Hours worked in a week thus set the background for assessing flexible working time.

The pie charts in figures 3.8 to 3.10 show different aspects regarding flexibility, including that employees possess it in different degrees. As presented in figure 3.8, flexible working hours are relatively normal, with 47% of the respondents in the panel

Figure 3.6. Employee Age—Distribution in the LPP
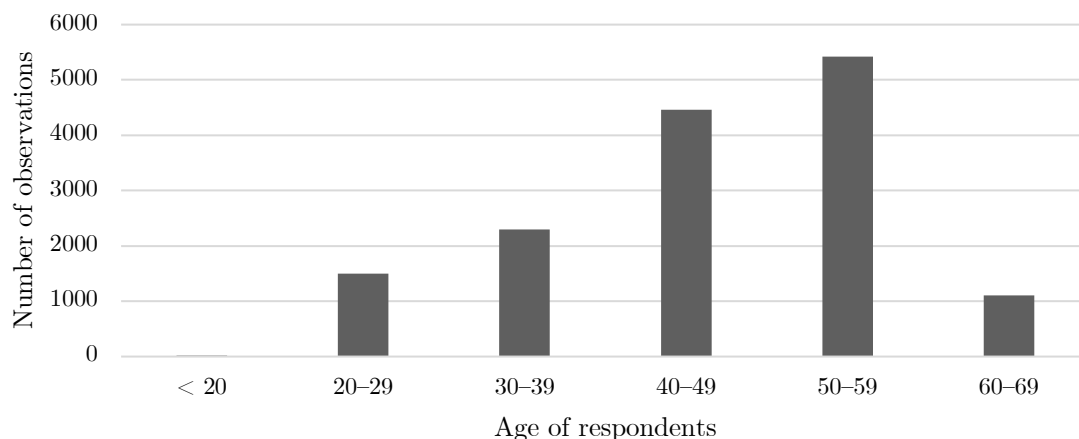
Figure 3.7. Actual Number of Hours Worked—Distribution in the LPP
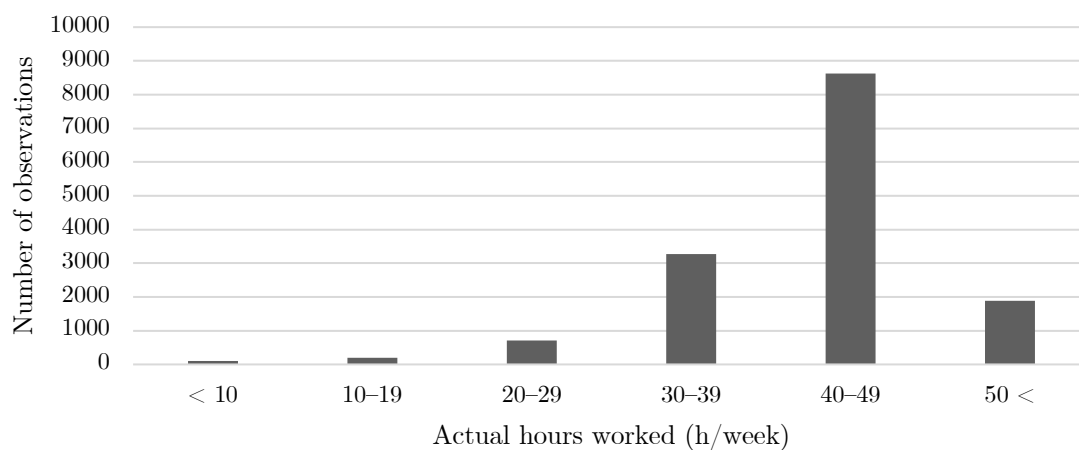
stating they have flexible working hours. Even so, the majority does not have the luxury of flexible working hours.

Home or teleworking includes a small proportion, only 3% the population, with such a contract. The distribution of contracted home or teleworking is displayed in figure 3.9. Nevertheless, a higher number of respondents indicated they have worked from home even though it was not agreed on by contract. Figure 3.10 shows that 18% of the employees in the LPP have worked from home, even if only occasionally. This result demonstrates that some employees enjoy the flexibility of working from home even if this is not contractually agreed upon.

Figure 3.8.
Flexible Working
Hours—Distribution in
the LPP

Figure 3.9.
Contractual Home- or
Teleworking—
Distribution in the LPP

Figure 3.10.
Working From Home,
Even if Occasionally—
Distribution in the LPP

■ Flexible ■ Not flexible   ■ Contract ■ No contract   ■ Yes ■ No
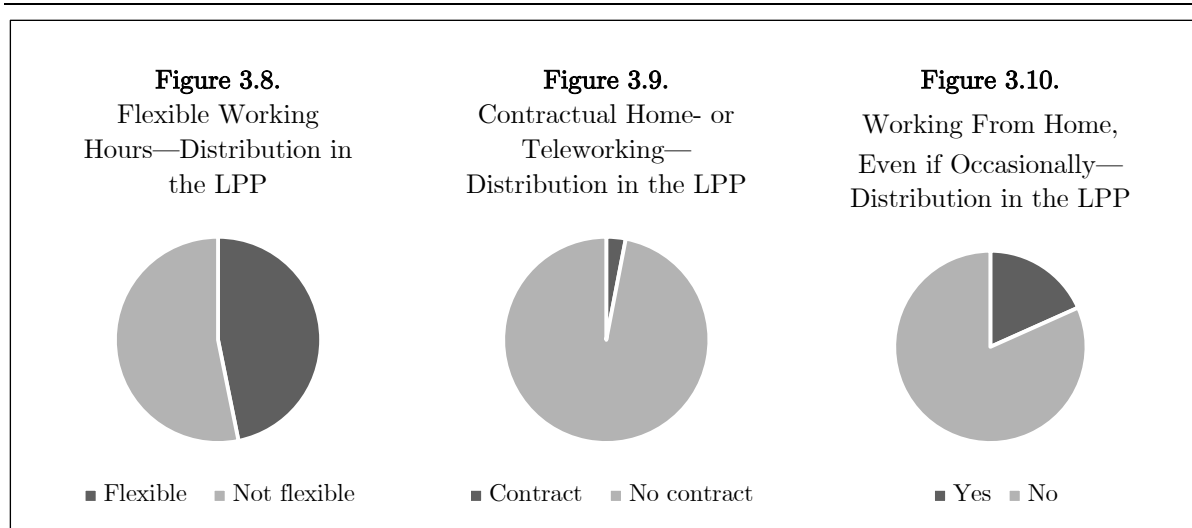
3.5 Research Techniques

During preparation, raw data from the LPP was transferred into desired 0 to 5 or 0 to 4 scales of categorical variables. This was done in order to a greater extent portray the results in a more understandable way and make the output consistent with the WHO-5 index. The scales used in the LPP are based on Morgeson and Humphrey's Work Design Questionnaire (2006), which is considered to be valid and reliable in assessing work and job characteristics in the German context (Stegmann et al., 2010).

The research questions of this master thesis were solved quantitatively using regressions. Therefore, econometric techniques, as ordinary least squares (OLS) and fixed effects regressions (FE), were used to clarify any potential correlation. The simplest way of handling the quantitative data is by treating it as pooled OLS. The OLS-estimations solve the core part of the thesis research questions because it is viewed as an appropriate tool used for analysis (Wooldridge, 2016). In addition, since the data consist of numerous companies defined using establishment-identifier number, firm-fixed effect estimations are possible. These were incorporated into the thesis in order to control by doing robustness tests on the OLS-regression results.

3.6 Control Variables

Control variables for testing the hypotheses were divided into two different groups; demographic control variables and work-specific control variables. In addition, as displayed in table 5.1, hours worked at home-variables were added to the first regressions, in order to control for differences between individuals. Demographic control variables include variables concerning the *age* and *gender* of the respondents and family conditions at home, such as *partner lives in same household, children under 14 in household*, and *household size.*

Work-specific control variables controlled for specific situations that respondents have at the workplace. Within this category, the variables included are: *actual working hours, actual working hours more than contracted, working in shifts, number of persons managing,* and *clear role communication.* All control variables are believed to be exogenous attributes that only correlate with the dependent variables. In addition, these are included in order to account for the effect of employees' demographic and work-specific characteristics.

Chapter 4

Empirical Approach to Test Hypotheses

> Employees physically leave the office, but they do
> not leave their work. They remain attached by a
> kind of electronic leash, like a dog.

<div align="right">Benoint Hamon</div>

The multiple regression analysis tool can be valuable in assessing the impact of a certain event (Wooldridge, 2016). For this reason, we use multiple regression analysis to solve the fundamental research questions of this thesis. Methodically, we begin with our first null hypothesis, the assumption that company-provided work condition flexibility does not impact work–family conflict negatively. The second null hypothesis states that ICT intrusion during leisure time does not increase work–family conflict. Third, the subsequent null hypothesis maintains that company measures, such as audits or certifications on employee work–family balance, does not decrease employee work–family conflict. Last, the fourth null hypothesis states that work–family conflict does not have any negative effect on employee well-being. The alternative hypotheses state that there is an effect in all these aspects. In other words, the working hypotheses of this paper are that, first (H_1), company-provided work condition flexibility reduces work–family conflict, second (H_2), work-related ICT intrusion increases work–family conflict, and third (H_3), companies having measures on employee work–family balance

reduces work–family conflict. Fourth, the final alternative hypothesis (H_4), is that work–family conflict reduces employee well-being.

4.1 Measurement of Work–Family Conflict

The *work–family conflict* variable is in this paper crafted using three categorical variables from the LPP employee questionnaire. These variables were related to work–family conflict issues caused by work-related matters. All three questions were present in both waves. In this paper the *work–family conflict* variable is based on the *Work–Family Conflict Scale*—a measurement of conflict between work and family developed by Netemeyer, Boles, and McMurrian (1996). Similar questions have previously been used and published in management research papers (Aryee, Luk, Leung, & Lo, 1999; Tepper, 2000).

As displayed in table 4.1, the LPP questions align with the understanding that there are three dimensions of work–family conflict: (a) behavior-based conflict, (b) time-based conflict, and (c) strain-based conflict (Greenhaus & Beutell, 1985). This model of measuring work–family conflict is widely cited and used, and between 2004 and 2006 was adopted in 14 papers (Chang et al., 2010). Even though the Netemeyer

Table 4.1

Work–Family Conflict Categorical Variables as Defined in the LPP

LPP question—303		Fully applies	Largely applies	Neutral	Does rather not apply	Does not apply at all
A	The demands of my work interfere with my home and family life	4	3	2	1	0
B	The amount of time my job takes up makes it difficult to fulfill family responsibilities.	4	3	2	1	0
C	My job produces strain that makes it difficult to fulfill family duties	4	3	2	1	0

Note. Instructions from questionnaire: In what follows, I have a few questions with regard to work–family balance. Please indicate again whether and to what extent the following statements apply to you. Scoring principle: The raw score ranging from 0 to 12 was multiplied by 8.33 to give the final score from 0, representing the worst imaginable well-being, to 100, representing the best imaginable well-being. Adapted from "Employment and Establishment – Employee Survey: 2nd Survey Wave," by FDZ, 2014, IAB, ZEW, U Köln infas.

et al.'s (1996) paper uses a scale with more questions concerning work–family conflict than the LPP survey has adapted. The three questions from the LPP that are used in this master thesis are assessed to be able to display an adequate, accurate and strong measure of all conflict dimensions. These three question in the LPP also include all three dimensions stated in Greenhaus and Beutell (1985).

The worst work–family conflict value possible in the aggregate scale is set at 100—indicating maximum possible work–family conflict. Each of the three questions was given a highest score of 4 and a lowest score of 0. This is based on the respondent's answer to the categorical variables. All three questions were weighted equally, and the score was then multiplied by 8.33, in order to create a scale between 0 and 100. In retrospect, the Stata-regression output of work–family conflict, when respondents answered "fully applies" on all questions, had the total value of 99 and not 100. This is understood, though, to have minimal impact on the results.

The goal of creating this score is to have a better understanding of the relative relationship between work–family conflict and well-being. Unlike the WHO-5, we created the 0–100 work–family conflict scale solely for his paper. The scale, thus, does not have an established theoretical mean value, unlike WHO-5, that can be used to express whether a single value is low or high. The output value of the work–family conflict's beta-coefficient is similarly difficult to understand, as it depends on three unique questions in addition to the 8.33 multiplication of the total score. Therefore, too much emphasis should not be placed on single-coefficient values when evaluating the regression output. Despite this, the work–family conflict scale can be used to measure covariance with other variables. In addition, it can be used to assess the strength of the variables' effect on each other.

4.2 Spatial and Temporal Flexibility—Hypothesis 1

The first research objective regarding the testing of the hypothesis is the examination of the relationship between company-provided work condition flexibility

and employee work–family conflict. Variables displaying the work condition flexibility were divided into two separate regressions measuring two different aspects of flexibility—spatial and temporal flexibility.

The spatial flexibility regression equation for measuring the relationship between company-provided *contractual home- or teleworking* and *work–family conflict* is defined below:

$$Work\text{–} family\ conflict = a_0 + a_i Contractual\ home\text{-}\ or\ teleworking + \beta x + u.$$

The temporal flexibility regression equation for measuring the relationship between flexible working hours and *Work–family conflict* is defined below:

$$Work\text{–} family\ conflict = a_0 + a_i Flexible\ working\ hours + \beta x + u.$$

The x indicates all demographic and work-specific control variables, the β displays coefficients of the control variables, a_i depicts coefficient of independent variable, a_0 displays the constant, while the u depicts the error term of the equation.

The questions defining flexibility in the LPP are stated in table 4.2. The spatial flexibility variable—*contractual home- or teleworking*—is composed of two questions related to each-other. The second question follows the response of the first.

Table 4.2

Flexibility as Defined in the LPP

Spatial Flexibility		
Do you work from home for your employer—even if only occasionally?	No	Yes
Is this home or teleworking agreed on by contract?	No	Yes
Temporal Flexibility		
Does the following apply to your occupation with regard to your working hours? You have flexible working hours.	No	Yes

Note. Answers from LPP questionnaire are given numerical values, "No" being 0 and "Yes" being 1. All questions were present in both waves. Adapted from "Employment and Establishment – Employee Survey: 2nd Survey Wave," by FDZ, 2014, IAB, ZEW, U Köln infas.

4.3 Work-Related ICT Intrusion—Hypothesis 2

The second hypothesis states that work-related ICT usage during leisure time increases *work–family conflict.* In other words, work-related ICT's intrusion in home affairs reduces the balance between work and family. The LPP questions used to define the variables regarding work-related ICT intrusion are displayed in table 4.3.

Work-related ICT intrusion is measured with two independent categorical variables, one of them available only in the second wave. Each categorical variable was measured on a scale of 0 to 4, 0 being "never" and 4 being "daily". Employees responded to the questions concerning whether modern means of business communications, such as e-mails, mobile phones or the internet, frequently turned their free time into working time. *Business phone calls or email interruption during leisure time* is an independent variable regarding frequency of business phone calls or e-mails that employees received or answered during their leisure time.

The two aspects of ICT intrusion were first tested individually. This was done using the following equations:

$$Work\text{–}\,family\;conflict = a_0 +$$

$$a_i Business\;phone\;calls\;or\;email\;interruption\;during\;leisure\;time + \beta x + u.$$

Table 4.3

Work-Related ICT Intrusion as Defined in the LPP

Wave 2				
Does the following apply to your job? The modern means of communication such as e-mail, mobile phone or the Internet frequently turn my free time into working time.	Fully applies	Largely applies	Neutral	Does rather not apply	Does not apply at all
Numerical value	4	3	2	1	0

Wave 1 and 2				
How often do you receive business phone calls during your leisure time or how often do you answer business e-mails?	Daily	A few times a week	A few times a month	A few times a year	Never
Numerical value	4	3	2	1	0

Note. Adapted from "Employment and Establishment – Employee Survey: 2nd Survey Wave," by FDZ, 2014, IAB, ZEW, U Köln infas.

and

$Work-family\ conflict = a_0 +$

$a_i ICT\ frequently\ turns\ free\ time\ into\ working\ time + \beta x + u.$

The regression equation for measuring the relationship between both aspects of work-related ICT intrusion together with work–family conflict is stated below:

$Work-family\ conflict = a_0 +$

$a_i Business\ phone\ calls\ or\ email\ interruption\ during\ leisure\ time +$

$a_i ICT\ frequently\ turns\ free\ time\ into\ working\ tirme + \beta x + u.$

As in the hypothesis one equations, x indicates all demographic and work-specific control variables, the β displays coefficients of the control variables, a_i depicts coefficient of independent variable(s), a_0 displays the constant, while the u depicts the equation's error term.

4.4 Company Measures on Work–Family Conflict—Hypothesis 3

In hypothesis three, we tested whether employees of companies that conduct *certifications or audits on work–family balance* have less *work–family conflict* compared to those who do not. Therefore, employees of the firms that do not perform such certifications or audits belong to the control group. Our hypothesis is that establishments that do formal work–family balance certifications or audits are more aware of their employees' work–family conflict, and thus have a significantly lower level of work–family conflict compared with employees of other business. This independent variable was set as a dummy, being either 1 or 0, depending on whether the firms do certifications, audits, or not. The questions on this matter is stated in

Table 4.4

Company Measures on Employee Work–Family Conflict as Defined in the LPP

Does your establishment/office voluntarily participate in certification and auditing processes?	No	Yes
In which certification or auditing processes does your establishment/office participate? In certification and auditing processes on work–family balance.	No	Yes

Note. Answers from LPP questionnaire are given numerical values, 0 for "No" and 1 for "Yes". Both questions were present in first and second wave. Adapted from "Human Resource Work and Corporate Culture – Employer Survey 2014 on Behalf of the Federal Employment Agency (Bundesagentur für Arbeit)," by FDZ, 2014, IAB, ZEW, U Köln infas.

table 4.4. The ambiguity of the question is a weakness that subsequently affected the interpretation of the results, but it still has the potential to indicate an effect. The estimation of *certifications or audits on work–life balance* is a joint effect of firms conducting voluntary certification or voluntary audit.

The regression equation for measuring the relationship between firm *certifications or audits on work–family balance* and *work–family conflict* is defined below:

$$Work\text{–}family\ conflict = a_0 +$$
$$\delta_i Certification\ or\ audit\ on\ work\ family\ balance + \beta x + u.$$

As in previous equations, x indicates all demographic and work-specific control variables, the β displays coefficients of the control variables, δ_i depicts coefficient of independent variable, a_0 displays the constant, while the u depicts the equation's error term.

4.5 WHO-5—Employee Well-Being—Hypothesis 4

We used WHO-5 in this thesis as a measurement index to assess the employee well-being. Following the World Health Organization's (World Health Organization Regional Office for Europe, 1998) framework, the LPP raw data was set up to get the

Table 4.5

The WHO-5 as Adapted in the LPP

Over the last two weeks		All of the time	Most of the time	More than half the time	Less than half the time	Some of the time	At no time
1	I have felt cheerful and in good spirits	5	4	3	2	1	0
2	I have felt calm and relaxed	5	4	3	2	1	0
3	I have felt active and vigorous	5	4	3	2	1	0
4	I woke up feeling fresh and rested	5	4	3	2	1	0
5	My daily life has been filled with things that interest me	5	4	3	2	1	0

Note. Questionnaire instructions: Please indicate for each of the 5 statements which is closest to how you have been feeling over the past 2 weeks. Scoring principle: The raw score ranging from 0 to 25 is multiplied by 4 to give the final score from 0 representing the worst imaginable well-being to 100 representing the best imaginable well-being. Adapted from "Wellbeing measures in primary health care: the DepCare project: report on a WHO meeting Stockholm, Sweden 12-13 February 1998," by World Health Organization Regional Office for Europe, 1998, p. 25. The questions were present in first and second waves.

desired score. Hence, the total value of *WHO-5* ranges from 0 to 100. *WHO-5* consists of 5 unique categorical variables, all displayed in table 4.5. Each variable has a maximum value of 5 and a minimum value of 0. All together the *WHO-5* can have a total score between 100 and 0, due to the summed score being multiplied by 4. The multiplication was done in accordance with the conclusion of Topp et al.'s (2015) WHO-5 index review.

The regression equation for measuring the relationship between *work–family conflict* and *WHO-5* is defined below:

$$WHO\text{–}5 = a_0 + a_i Work\text{–}family\ conflict + \beta x + u.$$

The symbols used in this equation are identical to the previous equations and therefore represent the same.

Chapter 5

Results

> For the first time since his creation, man will be
> faced with his real, his permanent problem—how
> to use his freedom from pressing economic cares,
> how to occupy his leisure, that science and
> compound interest will have won for him.

<div align="right">

JOHN MAYNARD KEYNES

</div>

The key objective of this paper is to gain new understandings of work's intrusion in home affairs. More specifically, in this chapter, this involves analyzing how company flexibility and work-related ICT usage during free-time affects work–family conflict. We then consider whether work–family conflict also affects employee well-being. Using the linked panel dataset, the findings furthermore display the effect of companies' work–family balance certifications or audits on perceived work–family conflict among employees. The results are presented in this chapter, in tables within the headings of the hypothesis, which range from 1 to 4. The focus at this stage is to present the results from pooled OLS regressions simply and clearly.

5.1 Spatial and Temporal Flexibility

5.1.1 Spatial flexibility—flexible home or teleworking.

Spatial flexibility is defined in terms of *contractual home- or teleworking.* Table 5.1 shows the results from the testing of *contractual home- or teleworking*'s effect on employees' work–family conflict. The first independent variable, *contractual home- or teleworking,* defines spatial flexibility as the employees' ability to work at home or over the telephone, agreed on by contract with their employers.

The results from the first column in table 5.1 indicates that employees' possession of a legal contract for home or teleworking is negatively correlated with *work–family conflict.* Thus, the regression indicates that employees with a legal contract concerning home or teleworking have a lower work–family conflict than those who do not have such a contract.

In the second through fourth columns, of table 5.1, the coefficient is estimated when holding constant *hours worked at home in a week.* Interestingly, we observe that the strength of the correlation between *contractual home- or teleworking* and *work–family conflict* depends on how many hours employees work at home, and whether the home-working is done within normal working hours. The strongest negative effect of *contractual home- or teleworking* on *work–family conflict* is found only when controlling for the number of hours worked at home during a week. Nevertheless, the principal finding of interest in columns 2 to 4 is the significant, negative impact of *contractual home- or teleworking* on *work–family conflict*, when controlling for different aspects of hours worked at home.

In addition, employees who work remotely more than 20 hours per week experience a strong decline in their work–family conflict. The findings suggest that employees who work more than 20 hours at home have less work–family conflict compared to those who do not work home at all. On the other hand, in column 2, the

Table 5.1

Testing Effect of Flexible Working Location on Work–Family Conflict

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Contractual home-/teleworking	−3.67**	−5.37***	−3.64**	−3.53**	−4.73***	−3.88**	−2.26	−3.77**	−2.22	−5.04***	−3.20*
Controlling for hours worked at home											
Hours worked at home in a week		0.24**									
Hours worked at home: > (10 h/week)			−0.15								
Hours worked at home: > (20 h/week)				−4.40***				−4.25**	−3.56**		
Work from home only in normal working hours					−9.89***					−10.19***	−7.96***
Demographic control variables											
Age						−0.16*	−0.16**	−0.16*	−0.17**	−0.16*	−0.17**
Gender (1 = male)						4.04**	−2.78	3.82**	−2.92*	3.53***	−3.11*
Partner lives in same household						−0.29	−0.56	−0.33	−0.57	−0.39	−0.59
Children under 14 in household						1.78*	1.53	1.73*	1.50	1.77*	1.53
Household size (persons)						0.10	0.13	0.15	0.15	0.05	0.08
Work-specific control variables											
Actual working time (h/week)							0.58***		0.58***		0.58***
Actual working hours more than contracted							0.54***		0.53***		0.51***
Working in shifts							7.23**		7.43**		7.15**
Number of persons managing							−0.00		−0.00		−0.00
Clear role communication							−4.51***		−4.51***		−7.96***
Constant	40.57***	40.26***	40.60***	41.32***	41.63***	43.80***	32.09***	44.68***	32.72***	45.88***	33.40***
Adjusted R^2	.00	.01	.00	.01	.01	.01	.13	.02	.14	.03	.14
n	2,656	2,271	2,656	2,656	2,656	2,407	2,190	2,407	2,190	2,407	2,190

Note. Data from the Linked Personnel Panel (LPP), waves 1213 and 1415.

$*p < .05.$ $**p < .01.$ $***p < .001.$

total hours worked at home was found to correlate positively with work–family conflict. This could indicate that the best-fitted line for hours worked at home is nonlinear. Despite the differences within *hours worked at home* control variables, *contractual home- or teleworking* maintains a significant negative relationship with *work–family conflict.*

Nonetheless, one of the clearest indicators of a reduction in work–family conflict is whether the employee only works from home during normal working hours, this is the case in column 5, 10 and 11. There is an important distinction between *working from home only during normal working hours* and not specifying this, as it might include employees who only work at home due to overtime. The results indicate that employees who work at home during their normal working hours experiences less work–family conflict compared to employees who do not. Furthermore, table 5.1 shows that the strength of the *contractual home- or teleworking* coefficient increases when controlling for *work from home only in normal working hours,* suggesting the importance of including the variable.

When determining the effect of *contractual home or teleworking* on employees' *work–family conflict,* demographic attributes of the employees were controlled for. Employees who took part in this study have differences in their personal characteristics, such as *age, gender, partner lives in same household, children under 14 in household* and *household size.* Controlling for demographic attributes of employees also allows us to understand how personal employee aspects might influence their work–family conflict.

In the sixth through 11th columns of table 5.1, we controlled for employees' demographic attributes. Empirical evidence in all these columns indicate that age correlates negatively with work–family conflict; thus, older employees experience less conflict between work and personal life. Additionally, male employees have less work–family conflict than to their female counterparts, but only when controlling for work-related attributes. The interesting part of the connection between gender and work–family conflict is that, when not controlling for work-specific attributes, male employees were found to have a higher conflict between work and family life. The

change in effect could be caused by gender differences that exist in weekly working hours (Wanger, 2006), since male employees tend to work more hours during a week. This finding could point to the fact that male employees generally have more conflict between work and family due to work-specific aspects.

In addition to the results presented above, we have controlled for work-specific variables that depend on the employer and, to some extent, on employees' personal perceptions of their work. The results demonstrate that work-specific attributes, such as *actual working time per week*, *actual working more hours than contracted*, *working in shifts*, *number of persons managing,* and *clear role communication,* have significant effects on employees' work–family conflict under all circumstances, as presented in table 5.1. In line with the findings of Ford and Collinson (2011), we controlled for managerial responsibilities by adding a variable for the number of persons managing, as this may have an effect. In this thesis, however, the findings show that the *number of persons managing* does not have any effect on *work–family conflict.*

Employees who work more hours than contracted experience more conflict between their work and personal life, and the same is true for employees who work in shifts. Additionally, the more hours employees work per week, the greater the conflict between their work and personal life is. However, employees who clearly know their roles at work experience less work–family conflict compared to employees who do not.

The adjusted R^2 specifies the explained proportion of variation in the dependent variable. We observed a gradual increase in the value of adjusted R^2, as more variables were included to the regression, including employees' demographic and work-related attributes. Adjusted R^2, in column 10 of table 5.1, shows that the included variables explain 14% of the variations in work–family conflict.

The employee sample size in table 5.1 varies from 2,656 to 2,190. The original sample size equals to 14,790, which is a combination of both the first and second survey waves. Out of 14,790 employees, only 2,656 answered "yes" or "no" to the questions regarding *contractual home- or teleworking.* Employees had two additional options when answering the questions, "refuse" and "do not know." However, sample

size was furthermore reduced to 2,190 employees because some respondents did not answer the questions regarding personal or work-related attributes.

5.1.2 Temporal flexibility—flexible working hours.

The next step of the analysis was on temporal flexibility. Temporal flexibility is in this paper defined as flexible working hours. Table 5.2 shows the effect of *flexible working hours* on employees' *work–family conflict*. The first column displays a significant negative correlation between *flexible working hours* and *work–family conflict*. This means that employees with flexible working hours tend to have less work–family conflict than employees who do not have flexible working hours.

In second column, *flexible working hours* was tested together with demographic control variables, and still maintains a high significance. As in table 5.1, female employees who have flexible working hours have better work–family balance than their male counterparts when not controlling for work-specific attributes. It should also be noted that having *children under 14 in household* positively contributes to *work–family conflict*, even though employees have flexible working hours.

In third column, work-specific control variables are included along with demographic control variables. The empirical evidence found in this column indicates that all of the previously significant results except gender remain valid when including work-specific characteristics. An interesting turn occurred when work-specific characteristics were controlled for. *Gender* did not seem to have any significant effect on *work–family conflict* in this specific case.

Additionally, the table demonstrates that the more hours employees work per week, the more the conflict they experience between work and family. All of the work-specific control variables are consistent with the analysis provided in the table 5.1 of the previous chapter. Employees who clearly understand what is expected of them at work, experience less work–family conflict compared to those who do not. As displayed in the third column *clear role communication* was highly significant.

Table 5.2

Testing Effect of Flexible Working Hours on Work–Family Conflict

	(1)	(2)	(3)
Flexible working hours	−2.81***	−2.66***	−1.79***
Demographic control variables			
Age		−0.04	0.00
Gender (1 = male)		4.86***	−1.01
Partner lives in same household		−1.17	−1.64
Children under 14 in household		2.37***	2.59***
Household size (persons)		−0.04	0.32
Work-specific control variables			
Actual working time (h/week)			0.57***
Actual working hours more than contracted			0.44***
Working in shifts			4.29***
Number of persons managing			0.01
Clear role communication			−4.45***
Constant	33.53***	32.46***	19.56***
Adjusted R^2	.00	.02	.12
n	14,587	12,249	11,230

Note. Data from the Linked Personnel Panel (LPP), waves 1213 and 1415.
*$p<.05$. **$p<.01$. ***$p<.001$.

Similar to table 5.1, the adjusted R^2 gradually increases from the first to the last column of table 5.2. Twelve percent of the observed variation in *work–family conflict* is explained by the variables presented in table 5.2. Table 5.2 is based on data from both the first and second waves. The original sample size of LPP consists of 14,790 observations, but in column 1 of table 5.2, the sample size was 14,587 because some of the employees did not respond to the survey questions regarding *flexible working hours* and *work–family conflict*. As demographic and work-specific attributes are taken into account, the sample size decreases even more, to 11,230 observations.

5.2 Work-Related ICT Intrusion

The analysis of the second hypothesis tests the effect of using work-related ICT during leisure time on work–family conflict. In this hypothesis, it is assumed that business phone calls or emails during leisure time increases employees' work–family conflict. There are two separate independent variables for this analysis, both of which measure different aspects of the same problem. *Business phone calls or email*

interruptions during leisure time measure the effect of work-related ICT interruption. The *ICT frequently turns free time into working time*-variable addressed how often mobile technology turned free time into work.

In the first through third columns of table 5.3, we observe how *business phone calls or email interruptions during leisure time* affect *work–family conflict*. Column 1 of table 5.3 clearly indicates that there is a positive correlation. This means that, business phone calls or emails during nonworking time increases employees' work–family conflict. In the second column of table 5.3, we took a step further and controlled for employees' demographic aspects. The third column presents empirical findings when both demographic and work-specific aspects were controlled for. The empirical findings, regarding *business phone calls or email interruptions during leisure time* having a positive relationship with *work–family conflict,* are valid under all circumstances presented in table 5.3.

A noteworthy observation is having *children under 14 in household,* which was positively correlated with *work–family conflict.* When controlled for demographic and work-specific aspects, males were found to have lower *work–family conflict.* Further, increasing the number of working hours per week increases work–family conflict. Empirical results in the third column of table 5.3 suggest that people *working in shifts* experience considerably more *work–family conflict* than those who does not. Last, if employees understand their exact workplace roles, as in *clear role communication,* they have less *work–family conflict* in their lives.

Fourth through sixth columns of table 5.3 represent empirical findings on how *work–family conflict* was affected by work-related *ICT frequently turning free time into working time,* and thus utilizing and testing the second aspect of work-related ICT intrusion. All of the results regarding the effect, of work-related *ICT frequently turning free time into working time* on *work–family conflict,* are valid. Furthermore, both aspects of work-related ICT intrusion are in coherence with each other. Most control and independent variables show similar results compared to previous tables.

Table 5.3

Testing Work-Related ICT Intrusion's Effect on Work–Family Conflict

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Business phone calls or email interruptions during leisure time	6.24***						3.59***	3.45***	2.78***
ICT frequently turns free time into working time		5.95***	4.83***	7.36***	7.10***	6.05***	5.26***	5.09***	4.62***
Demographic control variables									
Age		−0.07**	−0.01		−0.12***	−0.05		−0.12***	−0.06
Gender (1 = male)		2.60***	−2.02***		1.57*	−2.86***		0.84	−3.20***
Partner lives in same household		−1.24	−1.68		−0.64	−1.16		−0.74	−1.20
Children under 14 in household		1.99***	2.32***		2.16***	2.41***		1.99***	2.22***
Household size (persons)		−0.11	0.25		0.09	0.46		0.14	0.50
Work-specific control variables									
Actual working time (h/week)			0.50***			0.45***			0.43***
Actual working hours more than contracted			0.26***			0.42***			0.34***
Working in shifts			6.54***			6.07***			6.54***
Number of persons managing			−0.01			−0.01			−0.01*
Clear role communication			−4.35***			−3.77***			−3.89***
Constant	25.80***	28.13***	18.01***	25.57***	29.76***	18.29***	23.21***	28.23***	18.13***
Adjusted R^2	.07	.08	.16	.09	.10	.18	.11	.12	.19
n	14,571	12,234	11,220	7,096	5,987	5,557	7,089	5,981	5,554

Note. Data from the Linked Personnel Panel (LPP), waves 1213 and 1415.

*p<.05. **p<.01. ***p<.001.

The last three columns of table 5.3 present the empirical results when both independent variables are included simultaneously. Strongly significant results on both aspects of ICT intrusion indicate that these properties contribute positively to work–family conflict among employees. Though the combination of these different aspects reduces the strength of the coefficient, both sides of work-related ICT intrusion maintain a strong significance.

The control variables tend to uphold their significance in the last column, displaying the impact of different demographic and work-related characteristics on *work–family conflict*. Additionally, males are better at work–family conflict management compared to their female counterparts, but only if work-related aspects are controlled for.

The value of adjusted R^2 in table 5.3 indicates the proportion of variation in employee work–family conflict that is explained by the variables presented in the table. The value of adjusted R^2 increases as more variables were taken into account when tested the effect of work-related ICT intrusion on employee *work–family conflict*. The more variables that were included, the more the observed variation in *work–family conflict* is explained. Ultimately, as column 9 of table 5.3 suggests, the included variables explain 19% of the variation in *work–family conflict*.

In column 1 of table 5.3, the sample size was 14,571. The large number of observations in this regression was due to the question regarding *business phone calls or email interruption during leisure time* were included in both waves. However, the sample size decreases to 11,220, in the third column, because some employees did not answer questions regarding their demographic and work-specific attributes.

In the fourth column of table 5.3, we observe that the sample size is reduced to 7,096. The reason for this is that the variable *ICT frequently turns free time into working time* was only included in the second wave. The sample size gradually decreases from 7,096 in column four to 5,557 in column six as we took into account demographic and work-specific attributes.

From seventh through ninth columns of table 5.3, the sample size varies from 7,089 to 5,554. This is because both questions are taken into account when measuring

the effect on work–family conflict. Even though the question regarding business phone calls or emails was present in both survey waves, question concerning work-related ICT turning free time into working time was included only in the second wave.

5.3 Company Measures on Employee Work–Family Conflict

Our third hypothesis states that work–family balance certifications or audits conducted by companies affect employee work–family conflict negatively. We assumed that firms that voluntarily conduct certifications or audits on their employees' work–family balance are more concerned of this issue than firms who do not have this practice. Therefore, we wanted to determine whether people employed in companies that perform *certifications or audits on work–family balance* have lower *work–family conflict* compared to the employees in companies who do not. The test group for hypothesis 3 is the employees of the firms that voluntarily participated in certifications or audits on work–family balance, and the control group is the employees of firms that did not voluntarily participate in such processes.

In first through third columns, of table 5.4, the empirical evidence indicates that firms that conduct *certifications or audits on work–family balance* does not have any significant effect on employees' *work–family conflict.* These results are not statistically significant on the 5% level, neither alone nor when controlling for employees' demographic attributes. Thus, we cannot reject the null hypothesis, and we have no empirical evidence to prove that *certifications or audits on work–family balance* affects employee's *work–family conflict.*

There may be explanations for why the regressions does not provide statistically significant results; a measurement error, for example, is possible. The question regarding *certifications or audits on work–family balance* is ambiguous, and the questions' vagueness may make the response unclear. It is also difficult to know the degree of the certification or audit conducted. The questionnaire output thus might

Table 5.4

Testing Effect of Work–Family Balance Certifications or Audits on Work–Family Conflict

	(1)	(2)	(3)
Certifications or audits on work–family balance	−1.57	−0.25	0.47
Demographic control variables			
Age		−0.03	0.02
Gender (1 = male)		4.99***	−0.84
Partner lives in same household		−0.58	−1.47
Children under 14 in household		2.37***	2.77***
Household size (persons)		−0.25	0.06
Work-specific control variables			
Actual working time (h/week)			0.58***
Actual working hours more than contracted			0.41***
Working in shifts			5.02***
Number of persons managing			0.01
Clear role communication			−4.26***
Constant	32.12***	30.31***	16.64***
Adjusted R^2	.00	.01	.11
n	11,084	9,334	8,578

Note. Data from the Linked Personnel Panel (LPP), waves 1213 and 1415.

*p<.05. **p<.01. ***p<.001.

not be display the true situation. In our measurement, work–family conflict consisted of three separate questions that grasped different aspects of work–family conflict. The companies that conduct voluntary certification or audit, however, might not take into account the same factors we did.

The adjusted R^2 in table 5.4 represents how much of the observed variations that is explained by variables in the regression. The third column, of table 5.4 indicates that 11% of the observed variation in work–family conflict is explained.

The regressions testing hypothesis 3 included observations from both waves. The first column of table 5.4 shows that the sample size is 11,084. The sample size consists of employees in companies that answered the question on voluntary participation in certifications or auditing processes. Subsequently, employers were asked whether they voluntarily participate in *certifications or audits on work–family balance.* The control group for hypothesis 3 is all the employees of the firms that do not voluntarily participate in work–family balance certifications or auditing processes. The table displays a gradual decline in the sample size from 11,084 in the first column

to 8,587 the last column. This is due to the inclusion of variables not answered by all employees who were thus removed from the regression sample.

5.4 WHO-5—Employee Well-Being

The fourth hypothesis is tested by examining the effect of employees' work–family conflict on their well-being. In the first column of table 5.5, we observe that *work–family conflict* is negatively correlated with the *WHO-5*, which means that conflict between work and life diminishes employee well-being. This is also the case in column 2, in which demographic control variables were included. Work–family conflict maintains its strength and significance, when *age, gender, partner lives in the same household, children under 14 in household,* and *household size* are taken into consideration.

Further, in column 2 of table 5.5, we consider the demographic aspects of employees. The table displays that having *children in the household under 14* contributes to employees' poor well-being compared to employees who do not have children in this age range. In addition, in terms of *gender,* male employees in the regression were found to have better well-being than their female counterparts. The

Table 5.5

Testing Effect of Work–family Conflict on WHO-5

	(1)	(2)	(3)	(4)
Work–family conflict scale	−0.19***	−0.19***		
Behavior-based work–family conflict			−1.42***	−1.58***
Time-based work–family conflict			0.03	−0.07
Strain-based work–family conflict			−3.29***	−3.13***
Demographic control variables				
Age		0.02		0.03
Gender (1 = male)		4.28***		4.27***
Partner lives in same household		1.56*		1.53*
Children under 14 in household		−1.03***		−1.10***
Household size (persons)		0.45*		0.43*
Constant	68.85***	63.10***	69.20***	63.28***
Adjusted R^2	.06	.07	.06	.07
n	14,471	12,154	14,471	12,154

Note. Data from the Linked Personnel Panel (LPP), waves 1213 and 1415.

*p<.05. **p<.01. ***p<.001.

employees who live with their partner in the same household are also found to handle work–family conflict better than those who do not.

In the third and fourth columns of table 5.5, we consider the correlation of employee well-being with each of the three individual *work–family conflict* aspects, which together composes the *work–family conflict* scale. These three different dimensions of *work–family conflict* are: (a) *behavior-based work–family conflict*, (b) *time-based work–family conflict* and (c) *strain-based work–family conflict*.

The first aspect, (a), which is *behavior-based work–family conflict*, describes when work interfere with family life. As expected, the empirical evidence indicates that work interfering with family life negatively affects employee well-being. The results are highly significant. The second aspect of *work–family conflict,* (b), which theoretically is viewed as *time-based work–family conflict*, defines when work makes it difficult for employees to fulfill their family responsibilities. Interestingly, there is no significant correlation between this second aspect of *work–family conflict* and *employee well-being.* The final aspect of *work–family conflict,* (c), which theoretically is considered as a *strain-based work–family conflict*, portrays when job strain makes employees' family responsibilities difficult to fulfill. This particular situation leads to poorer employee well-being, compared to those who do not experience job strain. The coefficient from the third aspect of *work–family conflict* was found to be twice as relevant to explain changes in well-being than the first question was.

In the fourth column of table 5.5, we individually tested these three aspects of *work–family conflict* against employee well-being, together with demographic control variables. When control variables were included and when they were not, the second question on *strain-based work–family conflict* was not found to have any significant effect on well-being. Stressing that we do not control for hours worked per week, the insignificant result of the second work–family aspect on well-being is an interesting discovery. Thus, stating that difficulties in fulfilling family responsibilities due to the amount of time a job requires does not correlate with employee well-being.

In table 5.5 the adjusted R^2 is from .06 to .07, this means that 6% to 7% of the variety in employee well-being is explained by the variables presented in the table 5.5.

The sampling procedure for testing hypothesis 4 involved both the first and second waves. As seen in the first column of table 5.5, the sample size is 14,471. This includes employees who answered questions on the *work–family conflict* and the *WHO-5*. The three questions regarding the work–family conflict are all categorical variables that were measured on a scale with five different options ranging from "does not apply" at all to "fully applies." The measurement value, therefore, ranges from 0 to 4. Employees who chose not to answer were excluded of the sample size. In second and fourth columns, we took into account and controlled for employees' demographic attributes, which resulted in a lower sample size. The final sample size is thus 12,154 in the last column of table 5.5.

5.5 Summarized Results

Both spatial and temporal employee flexibility were found to be statistically significant in affecting work–family conflict. A unit increase of one in *contractual home or teleworking* leads to a 3.20 decrease in the *work–family conflict* scale. A similar increase in *flexible working hours* leads to a 1.79 decrease in the *work–family conflict* scale. Even though spatial flexibility—in this paper, *contractual home or teleworking*—was found to be a stronger indicator of change in *work–family conflict* than temporal flexibility—*flexible working hours*—both aspects were relevant explaining the conflict between work and family. Work-related ICT intrusion was found to be an even stronger indicator of *work–family conflict*. Individually, the different aspects of ICT intrusion display a 4.83 and 6.05 positive correlation with the *work–family conflict* scale. Even when regressed together, both work-related ICT intrusion variables are strong and highly significant indicators. The regression results of *certifications or audits on work–family balance*'s effect on *work–family conflict* displayed no significant result, and we thus cannot reject the null hypothesis.

The essence from testing the three first hypotheses on employee *work–family conflict* is that it is affected by temporal and special flexibility and work-related ICT

intrusion. Company measures, such as certifications or audits on the issue, do not seem to improve the conflict between work and family. Further, work–family conflict is found to be a clear indicator of well-being.

The results from the regression testing of the research question all, with the exception of the regressions on the third hypothesis, confirm the alternative hypotheses. Thus far in this paper, the coefficient size of independent variables has not been emphasized. This is due to the primary value of the coefficient size being demonstrated when compared across hypothesis testing, because the *work–family conflict* value is a 0–100 scale based on three separate questions. The true value of the *work–family conflict* scale thus becomes useful when evaluating the results from the hypothesis testing against each other.

Chapter 6

Discussion

> The work–life balance is a harsh reality for so many women, who are forced every day to make impossible choices. Do they take their kids to the doctor [...] and risk getting fired? Do they work weekends so they can afford to send their kids to better childcare [...] even though it means even less time with their families? Do they take another shift at work, so they can pay for piano lessons for their kids [...] even though it means they have to stop volunteering for the PTA? It just shouldn't be this difficult to raise healthy families.
>
> MICHELLE OBAMA

The core aim of this thesis is to gain new understandings of the connection between *work–family conflict* and the elements that impact it, including work related ICT usage at home and flexible working conditions' correlation with *work–family conflict.* Further, our goal is to determine whether these factors affect employee well-being and whether company audits or certifications on work–family balance can influence change in work–family conflict. Given the findings of chapter 5, the results

in some circumstances point to a clear assessment, while in other cases, they are ambiguous and open to discussion.

6.1 Robustness and Limitations

The robustness of the results in this paper was tested using firm-fixed effects (FE) regressions on the data, as well as by controlling for variance in the standard error by looking for heteroskedasticity. The concluding results of the robustness test, in general, support the findings of the multiple regressions. Nevertheless, there are some changes in significance when using the firm fixed effects estimator.

Since the main data comes from a panel consisting of cross-sectional data with firm-specific identifiers, it can be evaluated accordingly. OLS can provide useful insight but using firm-specific fixed effects exploits the magnitude and specificity of the dataset to a higher degree. This paper thus uses the fixed effects estimator as a robustness test of the output. By using this method, the observation value is subtracted with the average firm-value, thereby controlling for unobservable and omitted variables that variate across firms.

By using firm fixed effects when controlling for the variations across firms we lose the significance of several independent variables. *Contractual home- or teleworking*, as an independent variable of the spatial flexibility measure, is not statistically significant at the 5% level, nor is working hours flexibility, the temporal flexibility measure, when including all demographic, work-related, and control variables. Otherwise, working hour flexibility upholds its significant impact on work–family conflict. Hypotheses 2 and 4, which concerned leisure time interruption affecting work–family conflict and work–family balance affecting well-being, maintain their high significance in the fixed effects estimation, thus supporting the OLS findings.

Despite the limitations, due to some differing outcomes between OLS and FE, this paper maintains that the findings provided are clear. The limitations provided above must be taken into account but do not necessarily verify the null hypothesis.

OLS provides adequate insights but can in general be faulty in the event of heteroskedasticity (Wooldridge, 2016). Heteroskedasticity, the occurrence of variance in the unobserved error term changing as the variable changes, cannot bias either the beta-coefficient or the R-squared. However, it still can lead to violation of the Gauss-Markov Theorem of a best linear unbiased estimator (Wooldridge, 2016). Heteroskedasticity can potentially lead to bias in the standard error, which is used when computing the t-value. The existence of heteroskedasticity can lead to unreliable hypothesis testing, something we do not wish to occur. Thus, the multiple regressions were tested for robustness by examining heteroskedasticity. When testing for this in all thesis regressions, the robust standard error was marginally different from the nonrobust standard error, implying that the amount of heteroskedasticity in the observations is minimal. The conclusion of the test thereby indicates that heteroskedasticity is not a problem in this study.

6.2 Discussion of the Results

6.2.1 Spatial and temporal flexibility.

Ford and Collinson (2011) fear that a focus on work–life balance can impact managers' own balance negatively, resulting in the opposite effect of the one intended. Even so, this thesis maintains that work–family issues should be brought into the light—how else are we able to address the issues resulting from the increasing conflict between the domains of work and family? The findings of this thesis offer new insight into what type of flexibility reduces work–family conflict and under what circumstance this it is applicable.

While some studies worry over the blurring of the work–family border due to home- or teleworking, other studies have supported spatial and temporal flexibility.

Sar et al. (2017), for example, have stated that work–life issues must be addressed by proper working arrangements, as well as the formulation and implementation of policies and social support that can provide flexibility for employees. The flexibility of working hours thus must be imposed by the employee, and not the employer, to reduce work–family conflict. If not, Anttila et al. (2015) and Fleetwood (2007) have provided evidence of employer-driven flexible working hours, such as shift-rotation and enforced overtime, having a negative effect on employees' work–life balance. This employer-inflicted flexibility can be imposed in the interest of endorsing efficient usage of the company labor force, which is consistent with the findings of this thesis. This shows that working in shifts positively corelates with work–family conflict. The thesis results align with the findings from Wu et al. (2016) and Costa et al. (2006), that working in shifts is one of the strongest influencers of work–family conflict.

Contractual home- or teleworking was found to reduce work–family conflict and is thus understood to be a factor that can improve the balance between work and life. The effect maintains its negative relationship in all regressions, while not every regression displays a statistically significant effect of contractual home- or teleworking on the work–family conflict. During the development of the regression, it seems that the significant effect of contractual home- or teleworking is reduced due to work-specific control variables. This is not the case when including work from home only in normal working hours as a control variable; in that case, contractual home- or teleworking maintains its significance. This suggests that the effect of contractual home- or teleworking on work–family conflict depends on whether the employee uses it during normal working hours.

This is consistent with the findings of Nicholas Bloom in 2014, but although Bloom emphasized that the positive effect of home or teleworking depends on multiple factors, such as self-discipline and corporate culture (Bloom et al., 2014), this thesis finds that the effect depends the employee using home- or teleworking within normal working hours.

A concern regarding out-of-office work is that the border between the working domain and the nonworking domain might diminish due to the decrease of physically

separated workspaces. The increased blurring of the work–life border impacts work–life balance negatively, according to Adisa et al. (2017). Sullivan (2012) has argued against spatial flexibility in terms of working at home, stating that the entry of work affairs into the private sphere may affect family relationships negatively. These concerns from Adisa et al. and Sullivan do not necessarily contradict this thesis' findings.

Hours worked at home during a week generally correlate positively with work–family conflict, while the opposite is true if the person works more than 20 hours at home. To summarize the finding, if an employee works from home more than 20 hours per week, it is better for work–family balance. On the other hand, a lower number of hours worked from home contributes to an increase in work–family conflict. An assumption that people who work more hours at home to a larger degree have a distinct workspace compared to those who do not is possible given the findings. A high number of hours working at home might be due to the employee working whole days from home, and he or she is thus more likely to have a physical workspace at home. If so, the distinct physical separation of workspace and home-space might be a reason why the effect of working from home depends on the number of hours. If an employee works fewer hours, working from home might be done on a kitchen table, for example, instead of a home office space, and thereby to a greater extent contribute to a blurring of work and nonwork domains.

Temporal flexibility, that is, flexibility regarding working hours, was found to be a significant and strong indicator of changes in work–family conflict. This is the case when control variables were included and when they were not, even though the coefficient slightly changes with regard to its strength. However, the clarity of this result is of great interest as it provides evidence of a measure that evidently reduces work–family conflict. This result thereby supports the assessment of White et al. (2003), who have found that flexible working hours improve work–family conflict for women.

Interestingly, Tausig and Fenwick in 2001 found that family characteristics account for a significantly larger part of the variance in work–life balance and affect

work–life balance more than work-related features. Age, education, gender, family types, and most of all, children are thought to have the strongest influence on work–life balance (Tausig & Fenwick, 2001). The findings in this paper suggest otherwise, however, and point to work characteristics as the main influencer of work–family conflict—the negative of work–life balance. The empirical evidence proposed in this thesis states that partner, household size, and children do not affect work–family conflict, though the last is some cases is significant. Gender seems to be the strongest demographic feature regarding work–family conflict. In contrast to Tausig and Fenwick (2001), work-specific variables were viewed throughout most regressions in this paper as having a stronger impact on work–family conflict. It is difficult to say why the findings point in different directions, although the reader should take into account that some differences might be due to location, time, and sample size.

Even though this paper solely examines the effect of work on family, the two domains affect each other. Trouble at home can impact an employee at work. Greenhaus and Beutell (1985) have argued that research on work–family conflict should take both routes of influence into consideration. They maintain that a person who works longer hours might not have work–family conflict when the pressure to attend family activities is low (Greenhaus & Beutell, 1985), and thus the work–family conflict depends on employees' demands from family. This is taken into consideration somewhat during the regression by controlling for family-specific characteristics such as a partner living in the same house, the number of children under 14, and household size. Even though this differs from pressure to attend family activities, it is assumed by us to capture some of this effect and thus consider that both domains are mutually influential.

Authors Timsal and Awais (2016) have maintained that, although many companies endorse some degree of flexibility for working mothers or parents, working from home as a universal policy is still disputable. Productivity, innovation, collaboration, or other employer-salient traits are important factors for businesses proven to be affected, both for the better or for worse, due to the implementation of spatial or temporal flexibility. Given the concerns regarding the downside of spatial

flexibility, Yahoo banned it in 2013 (Bloom, 2014) because of collaboration issues among employees (Bort, 2015). Hence, the reader should keep in mind that businesses have unique deliberations regarding the implementation of employee flexibility. This is, however, not a concern for this thesis topic. Work-related goals might be evaluated as outweighing the positive effects of either flexible hours or contracts regarding home and teleworking or on work–family conflict, and individual considerations should always be deliberated. The findings nonetheless conclude that flexible hours as well as contractual home and teleworking reduces work–family conflict.

When comparing spatial and temporal flexibility to each other, we find some differences regarding the strength of the effect. Contractual home or teleworking is found to have a larger effect on work–family conflict, compared to flexible working hours. When not including control variables, the coefficient of contractual home- or teleworking is 31% stronger. But, when control variables are included, contractual home- or teleworking has a 78% larger negative effect on work–family conflict, compared to flexible working hours. These findings show that spatial flexibility is significantly more important explaining changes in work–family conflict, than temporal flexibility. Hence, policies aimed at reducing the conflict between work and family life should therefore focus more on increasing employees' spatial flexibility.

6.2.2 Work-related ICT intrusion.

The LPP statistics show that a significant number employees experience business phone calls or email interruptions during leisure time. In fact, 57% of the responding employees experienced this, showing that work-related ICT intrusion in home affairs is predominantly normal. Employees might feel obligated to be online and respond to work-related emails or phone calls during their nonworking time. This is assumed to be due to the lack of well-defined company regulations or guidelines regarding the use of work-related ICT. These findings suggest worrying consequences for the employees; the results, from the regressions on work-related ICT intrusion's correlation with work–family conflict, are clear and significant. Business phone calls

or email interruptions during leisure time are evaluated to impact work–family conflict positively, thereby contributes to a decrease in balance between the work and nonwork domains.

Dén-Nagy's (2014) concern that mobile phones are a double-edged sword is affirmed by the results of this thesis. The findings of chapter 5 show a clear increase in work–family conflict when work-related ICT interrupts leisure time. At the same time, in some cases, ICT is valued as a blessing with regard to the flexibility it provides employees (Currie & Eveline, 2011). Currie and Eveline (2011), however, have shown that personnel also experience that e-technologies at home come at a cost to their family life. Nevertheless, the results of this thesis are statistically clear and indicate a significant relationship with work-related ICT intrusion on home affairs and work–family conflict.

In accordance with the discoveries of Adisa et al. (2017), the conclusion concerning ICT's impact on work–family conflict is that the usage of work-related ICT blurs the border between the work and nonwork domains. Although mobile technology provides increased possibilities, it also negatively impacts family life if not dealt with properly. The empirical evidence of this thesis displays that the usage of work-related ICT during nonworking hours is the reason for the blurred boundaries between family and work domains, thus causing work–family conflict.

6.2.3 Company measures on employee work–family conflict.

The analysis of the effect of certifications or audits as a company measure to reduce work–family conflict show no significant results. Therefore, the findings provide no significant empirical evidence that firms that conduct such voluntary certifications or audits has any effect on their employees' work–family conflict, despite the fact that the number of observations ranges from 8,578 to 11,084. Certifications or audits on work–family balance does not seem to explain any of the variation in work–family conflict. Although 11% of the employees worked in firms conducting audits or

certifications, only 8% of the establishments participating in the LPP reported using these measures. The number of total observations in LPP is high, but the percentage of firms indicating they conduct audits or certifications during the first wave was only 7%, while for the second wave, it was 11%. This proves that work–family balance audits or certifications are not yet well recognized among German companies. The small proportion of the population with these measures might have an impact on the insignificant output of the result.

Nevertheless, certifications or audits as measures might not be relevant in solving the conflict between work and family life. If so, this conclusion has some significant policy implications, for example that firms should consider other measures to address the conflict. However, the reader should consider that some factors may bias the results. Yet another factor that might impact the effect of the voluntary certification or audits on work–family conflict is the ambiguity of the questionnaire, which only asks the establishments if they participate in these practices. The questionnaire thus does not evaluate the degree, type, and level of certification or audits. In addition, internal audits might not have the same effect as internationally recognized certification.

In addition, the LPP neither distinguishes between the two different purposes that audits and certifications fulfill, nor is it as precise as desired when measuring the connection with work–family conflict. Finally, the LPP uses contrasting phrasing in employee and employer surveys concerning the work–family relationship: in the employee questionnaire, "conflict" is used, while "balance" is used in employer questionnaire. Even though this latter point is not believed to cause a significant impact, consistency on this matter would be preferred.

6.2.4 Employee well-being.

Among the purposes of this paper, one major aspect has been to examine the problem of utility maximization given the constraints of work and leisure by using well-being as a measurement of utility (Easterlin, 2001). The WHO-5, recognized as a

useful model for assessing individuals' well-being (Topp et al., 2015) proved in this thesis to be the ideal basis of valuing utility maximization. First, concerning whether work–family conflict affects employee well-being, the former was found to be affected by multiple factors. Some of these variables are mentioned in previous chapters. The empirical findings from this thesis show that work–family conflict further affects well-being with solid significance. Gender, partner, children, and household size, however, were though found to influence well-being to a larger degree than the work family conflict scale.

Nevertheless, the results provide interesting conclusions from the regression. Strain-based conflict, together with gender, is among the variables tested with the strongest indicators of variation in employee well-being. The findings of this study demonstrate that strain-based conflict impacts employees' well-being negatively, even more than living with a partner contributes positively. Behavior-based conflict was also found to explain a considerable proportion of the effect on well-being. Interestingly, no findings showed that time-based conflict influences well-being, and the thesis thus cannot prove that time-based conflict impacts well-being in any way.

As a last remark, the output provides eye-opening empirical findings that, in the work–family conflict context, age has no proven impact on well-being. Although this result was of small significance with regard to the research topic, it remains an interesting deduction.

6.3 Policy Implications

Although contractual home or teleworking has a negative effect on work–family conflict, only 3% of employees in the LPP benefitted by such a policy. This meaning, even though it is an unusual agreement between workers and German firms, such a contract reduces conflict. Given the thesis results, we argue that business should consider implementing contracts on home and teleworking where they see fit.

The same is true for implementing flexible, employee-driven working hour systems. However, firms might have other considerations, in addition to employee well-being, and they therefore might weigh concerns such as innovation or cooperation as more vital. Even so, contractual homeworking and flexible hours might have additional positive impacts, such as productivity. Nicholas Bloom has argued this point in the *Harvard Business Review* (Bloom, 2014).

Not all employers can provide employees contractual work location flexibility, as some employment requires the physical participation of the employee in the workplace. In other cases, physical presence might be desired even though teleworking is possible, and therefore it would not be included in the contract. Considering these aspects, there still is room to increase the number of workers with a contractual home or teleworking option. Even if only occasionally, 18% of LPP employees have worked from home; we thus find it difficult to believe that only 3% of employments have engagements that require physical appearance five days a week and see room for improvements. Contractual home- or teleworking is a policy that was found to reduce work–family conflict and should increasingly be taken advantage of.

Clear corporate guidelines and policies regarding work-related ICT use must be in place; however, the formulation of such policies and guidelines should consider employees' perspectives and their issues regarding their work–family conflict. As it has been stated above, flexibility in the workplace and concerning work-related ICT should not be used only with the employers' best interest in mind. Employers' best interest might be to maximize the use of their human capital or the maximum possible profitability, which most likely does not take into account their employees' problems with work–family conflict.

The best approach to ensure a mutually beneficial situation for both employees and employers is to engage in dialogues before formulating and executing corporate guidelines and policies. Empirical evidence shows that only employee-driven flexibility and work-related ICT usage at home harms employees' work–life balance and ultimately affects employees' well-being significantly and negatively. Nevertheless, digitalization is important for businesses, thus, most companies cannot remove ICT

from the workplace. Clear guidelines and polices should be implemented in order to uphold both work-related ICT usage and work–life balance.

In this study empirical evidence strongly suggest that employees who experienced work–family conflict have poorer well-being than those who did not experience conflict. When implementing policies, the ultimate goal should be to maximize employees' well-being, or in other words utility maximization. Hence, the mentioned recommendations regarding policy implementations on flexibility and ICT aims to reduce work–family conflict in order to achieve the goal of utility maximization.

6.4 Conclusion and Further Research

The best approach to ensure a mutually beneficial situation for both employees and employers is to engage in dialogues before formulating and executing corporate guidelines and policies. Empirical evidence show that only employee-driven flexibility and nonstop work-related ICT use harms employees' work–life balance and ultimately affects employees' well-being significantly and negatively.

Additionally, ICT has been a concern for researchers, policymakers, and national states. Both Germany and France have considered implementing national regulations to prevent the negative consequences of ICT (Stuart, 2014), but, so far, only the latter country has done so by law (Wang, 2017). Nonetheless, to know whether a solution should be proposed, there first must be an existing problem. Do modern means of communication intrude in home affairs? Researchers have found that ICT has both negative and positive consequences for home and family life. The findings of this master thesis are consistent with previous studies, that demonstrated the positive influences ICT has on work–family conflict and show that work-related ICT intrusion increases conflict between work and family.

Furthermore, can establishments reduce work–family conflict by conducting certifications or audits? We hypothesized that this was the case, but the results of

this thesis cannot find any significant effect on work–family conflict. There may be some limitations on the results regarding certifications or audits, and therefore we propose that, due to the ambiguity of the questions, any result, significant or not, and in this case not, might be subject to bias.

Finally, how do employees maximize their well-being or utility with regard to work–family conflict? Not surprisingly, the findings show a negative relationship between employee well-being and work–family conflict, suggesting that conflict between the work and family domain reduces well-being. As mentioned in the introduction, there are some modern problems succeeding the design of the work-leisure choice model, among them the intrusion of ICT by blurring boundaries. If employees wish to maximize their utility, they should do so by choosing a work–leisure allocation that maximizes utility and minimizes the negative effect of the blurring of borders between work and nonwork domains. Work–family conflict is proven to be a clear indicator of employee well-being, and measures to improve well-being should bear this in mind.

6.4.1 Further research.

The thesis proposes a strong negative relationship between contractual home or teleworking and work–family conflict. It would be interesting if future research investigated whether personality traits, such as self-discipline, impact contractual home or teleworking's effect on work–family conflict. The LPP includes many personality aspects, but none of these were a part of this thesis. Extending the research to include the *Big Five* personality traits would be of interest.

Further, considering firm measures that can reduce conflicts between work and family should be of great public interest. As concluded during this paper, certifications or audits are not proven to affect work–family conflict. Due to the ambiguity of the question regarding these practices, however, it is feared that the conclusion contains some bias. Therefore, we suggest extending the research on concrete certifications or auditing processes that are linked to well established and recognized measures. By

doing so, a result would to a larger degree be able to reject either the null-hypothesis or the alternative hypothesis on this issue.

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