Susanne Schneider

HR Policies
and Maternal Labor Supply

The Example of
Employer-Supported Childcare

The author asks how far the extension of employer-supported childcare serves as a driver for higher maternal labor supply. She addresses this question by categorizing employer-supported childcare as an efficiency wage introduced by the employer to increase the working volume of mothers. Applying various impact evaluation techniques in an econometric analysis, the author concludes that the availability of employer-supported childcare has a positive impact on the length and working volume of mothers who return back to work after giving birth. Furthermore, the usage of employer-supported childcare by mothers with pre-school age children influences the amount of agreed and actual working hours positively.

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HR Policies and Maternal Labor Supply
The Example of Employer-Supported Childcare

PL ACADEMIC RESEARCH

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Abbreviations

ATE	Average treatment effect
BMFSFJ	Federal Ministry for Family Affairs, Senior Citizens, Women and Youth
CDU	Christian Democratic Party
CRM	Competing risk models
DiD	Difference-in-Difference
ESCC	Employer-supported childcare
EHA	Event history analysis
Fid	Familien in Deutschland (Dataset)
FE	Fixed effects
HRM	Human resources management
LFP	Labor force participation
OLS	Ordinary least square
PSM	Propensity score matching
SOEP	Socio-Economic Panel of Germany
SPD	Social Democratic Party
SE	Standard error
USA	United States of America

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1. Introduction

1.1 Background

The female and especially the maternal labor supply is substantially lower than the male one. This is an observation independent from the kind of measurement, which could be exemplarily the labor force participation (LFP) rates, the working volume, or the participation rate over the life cycle (BMFSFJ, 2014). The different results between the two sexes stem from work interruptions and reductions due to child rearing. Twice as many mothers of pre-school aged children would however prefer to increase their paid working volume instead of decreasing it (Lauber, Storck, Spieß, & Fuchs, 2014). The divergence between the actual and preferred employment rates and the often marginal employment modes of mothers have important implications for various actors.

Concerning the mother, postponing a return to employment after childbirth, or working in marginal employment, impedes future career advancements substantially. This employment mode is often marked by limited sovereignty, as demand oriented contracts or unexpected working times dictate the working rhythm. In addition, reduced income does not only restrict current expenditures, but also results in lower levels of pension entitlements (Huesmann & Gärtner, 2015). The national government introduced even a special pension policy considering child raising years in pension calculations of mothers to prevent old-age poverty (Haan & Thiemann, 2015). Next to the monetary dimension, mothers develop a lower level of life satisfaction, if they are forced to work less than their preferred time (Berger, 2013).

The employer should also prefer an appropriate reintegration of mothers into the internal labor market. The depreciation of (company-specific) human capital due to long periods of non-participation or only limited participation with minimal working time is wasteful. This is especially true for high-qualified mothers working in sectors with a skilled labor shortage (Becker, 2009).

The state can profit from an earlier return to work and moderate working volume also in three interconnected ways: Firstly, a greater working volume results in additional tax income. Secondly, increased payments are made for social security insurances. Thirdly, the state thus can relieve the expenditures on parental leave benefits (Then, Münscher, & Stahlschmidt, 2014).

There are monetary and psychological benefits to an increase in maternal labor supply for the mothers. Yet external circumstances hamper the realization. The maternal labor supply depends on a wide range of reasons, for example personal preferences, the personal (financial) situation, distinct welfare state policies, one's marital status, the ages of all the children in the household, and so on. One factor stands out: eighty-two percent of mothers of two-to-three-year-old children and 77 percent of mothers of four-to-six-year-old children state that they would like to increase their work involvement, but cannot do this due to issues with childcare

provisions (Lauber et al., 2014). In 2012, 28 percent of children aged zero to two and 94 percent of children 3 to 5 attended public childcare facilities. This number increased to 33 percent and 95 percent respectively by 2015 (Statistisches Bundesamt, 2016a). However, 200,000 and 560,000 spots are missing for children below three years of age (Gamperl, 2013). Quality, in terms of staffing or opening hours and access, places restrictions on mothers to rely on public childcare facilities, usually provided by the municipalities, churches, or other non-profit organizations. Looking ahead, the current structure of financing public childcare in combination with lacking incentives of the labor market for qualified staff hampers the qualitative and quantitative expansion (Egbert & Hildenbrand, 2014). The reliance on commercial childcare (e.g. child-minder or private organizations) as an alternative is problematic because of, for example, that sector's often high tuition.

Generally, the state takes on the burden to enforce social policies like childcare. However, due to its cross-sectional character, and due to self-interests of other actors, more stakeholders get involved in social policies (Gerlach & Schneider, 2012). Particularly, the involvement of businesses is increasing. Over 40 percent of companies regard the reconciliation of family and work as an important topic to address (BMFSFJ, 2013b). Employer-supported childcare (ESCC) is one way for companies to be involved in the implementation of social policies. Accompanying an increased interest in this, the amount of on-site childcare facilities run by employers has increased consistently from 307 in 2006 to 726 facilities in 2015 (Grieß, 2016). The involvement of the company is welcomed by the state. The German government introduced a law providing Euro 400 in subsidies for every space made available in a corporate childcare facility (BMFSFJ, 2006, 2013a).

ESCC belongs to human resource management (HRM), which concerns the process of hiring and developing employees to become more valuable for the organization. According to the neoclassical standard model, arguing that human beings react to external incentives, one may assume that the provision of ESCC automatically leads to higher employment rates of mothers (Kirchgässner, 2008). Considering social preferences implies that the intrinsic work motivation might be enforced due to external incentives (Frey & Jegen, 2001). More specifically, crowding in can be explained by the gift-exchange theory stating that employees are likely to increase their working effort if the employer pays an above-average salary (Akerlof, 1982, 1984). The full expansion of the work effort might however be dependent on the external work environment and private circumstances (Herzberg, Mausner, & Snyderman, 1959). Based on this theoretical framework, the following research question emerges:

In how far does the extension of ESCC serve as a driver for higher maternal labor supply?

Despite the growing importance, the effects of family-friendly HRM like ESCC on maternal employment in Germany remain scarcely studied. There are several studies (for instance Feierabend & Staffelbach, 2015; Morrissey & Warner, 2011)

investigating a causal relationship between the two variables in the international context, yet a consistent picture cannot be identified. Due to the scarcity of available research, the literature review contains several studies from other countries and often presents data beyond that of just maternal employment (for instance all employees). While childcare preferences are often analyzed under redistributive points of view, like disposable income (Borck & Wrohlich, 2011; Stadler, 2014), the analysis at hand focuses especially on the individual preferences and working environment in regards to the working attitude. Individual preferences refer to the personal attitude towards work and benefits introduced by the employer, which influence the effect of workplace policies. The employer is substantially able to shape the working environment of the employees. Preliminarily, the employer decides about the working time and location including the degree of autonomy to this exerted by the employee. Moreover, the employer determines the workplace design, supporting technical devices as well as additional benefits leading to greater degree of comfortability for the employee. The shaped working environment influences the work conditions, which in turn might affect the productivity and motivation of employees. Hence, the employer is mostly interested in introducing policies which have potentially the greatest positive effect. Employee benefits and other kinds of compensation which go beyond the legally stated salary are known as efficiency wages. The following analysis investigates the potential effects of efficiency wages on maternal labor supply, hence not maternal labor supply per se. Thereby, several hypotheses about the reactions of mothers to ESCC and its dependence on the working environment and individual preferences are included. Individual control variables are included as well.

According to the gift-exchange theory, the efficiency wage is able to influence the working effort or productivity, which is often hard to measure in the reality of working life. Maternal labor supply is often characterized by its deviation from the standard employment relationship due to expected work interruptions when women give birth and tend to children. These interruptions, their duration and to which extends she re-enters the workforce are left to the mother. Until now, there is no knowledge whether efficiency wages offered by the employer do provide incentives for mothers to increase their maternal labor supply.

Work interruption due to giving birth and working volume of mothers with young children are interconnected, since a long work interruption leads generally to a decreased working time afterwards. In the context of this study, both dimensions are treated separately to assess whether ESCC as an efficiency wage has the same or a different effect on the two dimensions.

The research strategy applies econometric analysis to trace a causal relationship between ESCC and maternal labor supply. The decision when a woman returns to her workplace after having a child is measured with an event history analysis model (EHA), comparing mothers employed in a company with ESCC and without ESCC. This allows conclusions about whether the provision of ESCC has a positive impact on the re-entry into employment. The same approach is taken for the question on the extent of the working volume when returning back to work. Here, a competing

risk model (CRM) evaluates the return-to-work differentiated with respect to marginal, part-time, and full-time employment.

Concerning the working volume, both mothers of newborn children and those with pre-school kids are studied. Propensity score matching (PSM) allows the exploration of observable characteristics in the comparison between mothers working in companies with ESCC and mothers working in companies without ESCC. Thereby, it will be differentiated between the mere availability of ESCC and the usage of ESCC. It can furthermore be differentiated between the usage of ESCC by the mother herself and the usage of ESCC by the father. Next to the consideration of observable differences between mothers, unobservable differences play a substantial role. Therefore, a difference-in-difference (DiD) estimator is included to be able to control unobservable differences between mothers like cultural attitudes. This estimator differentiates between a pre- and post-treatment area, meaning that the differences in employment rates before and after the introduction of ESCC are compared to the pre- and post-treatment employment rates of mothers without ESCC. Thereby, different specifications are used for the purpose of robustness checks. The working volume will be analyzed both as actual and agreed-upon working time.

The analysis is based on the Familien-in-Deutschland (Fid) dataset, covering the years 2009 to 2012. It has already been mentioned that certain mothers would like to increase their working volume and that external circumstances may not allow it. Therefore, a distinct part of the analysis includes a meta-analysis on further effects of ESCC next to the explicit measurement of the working volume, like the working attitude.

1.2 Structure

The thesis develops its argument throughout the course of several chapters. The following chapter provides an overview of maternal labor supply and addresses the importance of childcare. It presents descriptive statistics comparing male, female, and maternal employment as well as reviewing obstacles mothers experience when deciding to work. The provision of non-parental childcare and its variations are laid out. ESCC, an alternative to public childcare, its historical development, spread, and variations are traced in detail as it is an essential focus of this work.

Having established the underlying societal system and childcare provision, chapter three shows the determinants of maternal labor supply with distinct sections on individual and household determinants, employment modes, employer-related factors, the welfare state, personal attitudes, and individual perceptions, amongst others. The chapter provides an overview of these factors' interdependencies and context. Moreover, it includes additional ancillary effects of ESCC on the working attitude of employees. The fourth chapter operationalizes ESCC as a theoretical construct, in a neoclassical and gift-exchange theory relationship, which introduced sociological aspects to an otherwise predominantly economic model. This allows the derivation and testing of several hypotheses. Methodologies and theoretical details utilized in the approach of this thesis are central to chapter five. This section clarifies

the framework for the research objectives and questions, research strategy, datasets used, and employed impact evaluation techniques. The chapter closes with the operationalization. The sixth chapter contains the results. Thereby, distinct sections present the effects on the return-to-job after childbirth and the working volume.

The seventh chapter contextualizes the results, discussing the effects on the re-entry into employment and working volume distinctly. Afterwards, both kinds of results are interpreted in a combined way to assess whether ESCC can be interpreted as an efficiency wage and whether the potential efficiency wage is a suitable instrument to encourage maternal labor supply.

The eighth chapter summarizes the findings and includes the limitations.

2. Framing the Picture: Maternal Employment and Childcare

The purpose of this chapter is threefold. The first part describes maternal labor supply, thereby contextualizing the employment rates of mothers, comparing them, for example, to male employment rates, or classifying them according to socio-demographic characteristics. The third part deals with maternal LFP and the resulting dependence on childcare. It also discusses the reasons for choosing part-time compared to full-time employment. The third section then discourses the provision of childcare by state and employer before describing the current situation of ESCC.

2.1 Male, female and maternal labor force participation

This section starts by putting the German female LFP into an international context. The subsequent table shows the total and female LFP rate for distinct industrialized countries and groups of countries.[1]

Table 2-1: LFP rate in certain states in 2014 in percent for women and total aged 15 to 65
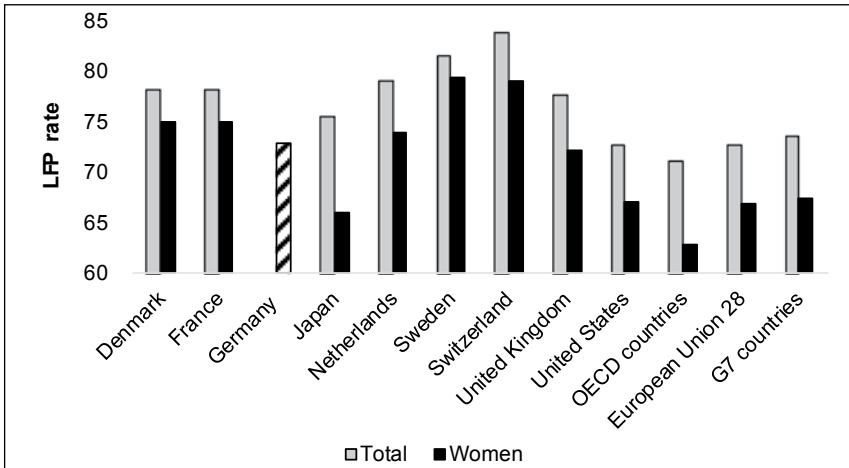
Source: OECD (2015)

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1   The percentage of employed or unemployed working age persons actively seeking a job in an economy (OECD, 2015). It is used interchangeably with the term employment rates.

Switzerland's LFP rate with approximately 84 percent is the highest participation in table 2.1. Germany lies at 78 percent as a whole and 73 percent for females. Compared to the other countries, Germany is in mid-field. The higher the total LFP of a nation, it appears in this table, the higher the percentage of female LFP. For instance: Sweden's female participation rate of 79 percent shows, like Germany, a five percent gap to total LFP, whereas Japan's total of 76 percent LFP shows a ten percent gap to female LFP with 66 percentage points. This raises questions in regards to the gender split within LFP rates.

Table 2-2: LFP of men and women between 1960 and 2014 aged 15 to 65 years
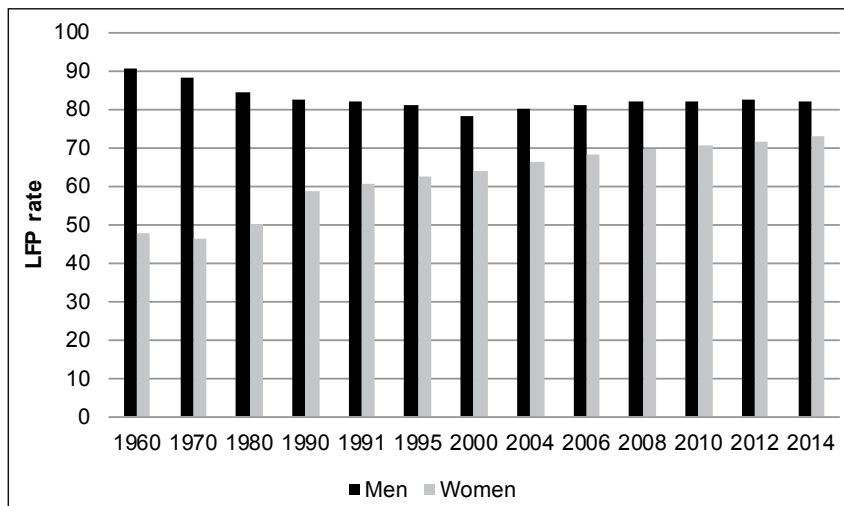
The table shows an increase of women in the labor force between 1960 and 2014 from 48 to 73 percent. Simultaneously, the LFP rates of men decreased during the same time span from 91 percent to 82 percent. The discrepancy between the employment rates of women and men decreased significantly from 1960 to 2014. These changes over half a century are a reflection of a variety of developments, as married women now started to enter the labor market. Since women were systematically integrated into the labor market as paid labor due to political ideology, former East Germany experienced an even quicker rise of women in the nation's LFP throughout the centuries (Müller, Handl, & Willms, 1983).

After World War II, many women were forced to work on the one hand due to the large amount of men who did not return from the war or who stayed in captivity, and on the other hand due to economic needs. After returning from captivity and the simultaneous foundation of the Federal Republic of Germany, certain regulations excluded women from performing their employment as before. For

instance, female civil servants, whose husbands were employed in the public sector as well, were allowed to be fired. Hence, during the 1950s, the breadwinner model dominated. Consequentially, the expansion of public childcare facilities stopped, which exacerbated the employment opportunities of mothers substantially. Beginning in the 1960s, the economic growth inhabited primarily an increased demand of labor, which went however along with a raise in fertility rates, impeding entering employment even more. Nevertheless, especially younger women benefitted from the education expansion. The economic growth with the increase in service sector jobs and flexible working arrangements (for instance part-time) increased the demand of workers well suited to the expectations of female workers. Societal developments including the debate on equality starting from 1968 pushed the employment rates of women. Just from the middle of the 1970s onwards, wives were allowed to work without the explicit permission of their husbands. The law was in line with the renunciations of the role model as a housewife in society. The new attitude of women resulted in increased divorce rates, which inhabited that many women needed to work out of financial reasons. Consequentially, the unemployment rates of men increased at the end of the 1970s due to the increased female LFP. Hence, other groups of wives needed to enter employment to compensate the loss of income (Drobnic, 1997). From then to the beginning of the 2000s, the female LFP saturated to 70 percent.

While the table indicates a convergence of the LFP rates between the two genders over time, four substantial differences do prevail in the present. Firstly, women and men are working in different gendered occupations, which is called *horizontal segregation*. Secondly, they occupy different positions and ranks, when working within the same field, leading to a *vertical segregation*. Thirdly, the working volume differs between both genders substantially referred to as the *gender time gap*. These three markers of gender within the labor force then lead to the fourth gap between male and female labor force participants, the often debated *gender wage gap*, addressing differences regarding the salary practices for men and women (Allmendinger, 2010).

Starting with horizontal segregation, Allmendinger (2010) refers to the variance of occupations in which women are working. Around half of all employed women are working in five out of 87 employment groups. Approximately 20 percent work in "office-related" occupations such as secretarial jobs, another ten percent in health services, nearly eight percent in retail, around seven percent in social services, and six percent are employed in custodian jobs. In comparison, around one quarter of all employed men are employed within five different occupations. Here, just six percent of all employed men are working in "office-related" occupations, five percent of the men work in company management and consultation, five percent are employed in jobs related to transportation, and 4 percent work as engineers and technicians. Hence, it can be concluded that the distribution of job employment by men is spread more diversely, compared to the distribution of jobs occupied by women (Allmendinger, 2010). Horizontal segregation is not only visible over the range of occupations, but also across economic sectors.

Table 2-3: Proportion of LFP of women and men in various economic sectors in 2014
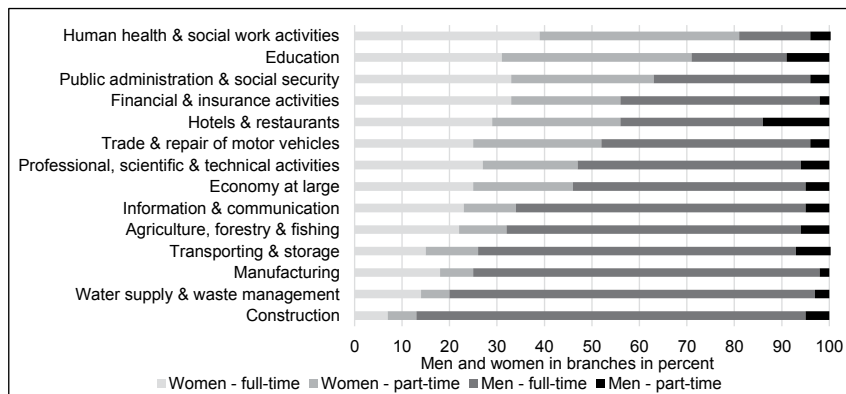
Source: Bundesagentur für Arbeit (2015)

The clear gender bias in certain fields leads to the construct of so-called "women's occupations". Eighty-one percent of the employees in human health and social work activities, 71 percent of the education and 63 percent of the workers in public administration and social security are women. These sectors are all service sectors, which grew in the past due to the decline of the production-related sectors. Furthermore, fields in which one can identify a high proportion of female workers often employ a high amount of part-time workers. Men, to the contrary, mainly work in sectors with higher full-time employment. This division of gendered labor forces will be discussed in more detail below.

Allmendinger addresses, thereby illuminating vertical segregation, the recently introduced women's quota (*Frauenquote*), making it necessary to explore the qualification distribution in the workforce first. In 1991, nearly eleven percent of women and 16 percent of men held tertiary degrees. In the last 25 years, this difference has decreased significantly. In 2013, the proportion of women having a university degree had more than doubled since 1991, which marks an increase of 200 percent versus the male 30 percent increase for the same time span. More than half of all men and women in the labor force have a vocational education still and the number of uneducated women has dropped from roughly 25 to 16 percent. In comparison, the proportion of men without any degree is nearly constant and just slightly lower in 2013 compared to the women. It follows that women have engaged in improved education models more extensively than men (Statistisches Bundesamt, 2014). Considering the gender split in employment mentioned in the discussion of horizontal segregation, it comes as no surprise that 14 percent of female employees assess that they are overqualified for their occupation, while just ten percent of males feel this way (Statistisches Bundesamt, 2016b).

The women's quota has been introduced to increase the number of women in leadership positions in the private and public sectors. Passed on 6th of March 2015, under the legislation, more than 100 companies that are listed and that have co-determination (i.e., employee representation on their supervisory boards) will be required to set aside at least thirty percent of the new board seats for women from 2016. As of 2018, the proportion of women must be increased to fifty percent. About 3,500 medium-sized companies that are either listed or co-determinant would be required to set their own targets to increase the proportion of women on their supervisory boards (*Aufsichtsrat*), executive tier (*Vorstand*) and at top management levels. If the quota is not met, the companies will be required to fill any vacant positions with women or leave them empty (BMFSFJ, 2016a).

The proportion of women in the executive tier of the 200 top-selling companies is currently at six percent. Within this group, nearly half of the DAX companies as well as companies with partial public ownership already reached the quota. The proportion of women serving on supervisory boards accounts to 20 percent among the top-selling companies. The proportion of women in leading positions is even higher in the public sector, where women make up 15 percent of executives and 30 percent of supervisory board members (Holst & Kirsch, 2016). Next to the supervisory boards and the executive level, which are mostly just available in great companies, it is worthwhile analyzing the occupation of management position over all companies. Women have occupied 25 percent of the first management level including the management as itself, executive board, owners, board of directors, branch management, and management committee since 2004. The second management level has urged a continuous increase in female employment. It increased by six percent in 2004 to 39 percent in 2014. Comparing these numbers to the proportion of women in the labor market as a whole (43 percent) reveals that the women are underrepresented in leading positions in relation to their total employment numbers. Women in the first management level in companies with one to nine employees are around 26 percent while the same number accounts to 16 percent in companies with more than 500 employees. Hence, it can be demonstrated that the proportion of women in leading positions increases with the size of the company. Since 2004, the percent of women working in the first management level in former East Germany has increased by three percent points, while it stays constant in former West Germany. With regard to the second management level, an increase of five percent can be observed for former West Germany, while it increases by seven percent in former East Germany (Kohaut & Möller, 2016). Firstly, one may argue that pre-unified West Germany already promoted an equal integration of women, which might have a positive effect on later career advances (Erler, 2011). Secondly, the size of companies is generally smaller in former East Germany compared to former West Germany (Kohaut & Möller, 2016).

It needs to be addressed that women are more likely to lead if they work in the service sector. 43 percent of women in the first management level as well as 72

percent in the second management level work in education or social services. Generally, it seems that fields considered to be women's occupations also have a larger share of women in leading positions. One exception is the finance and insurance related sector. Here, the female share of the working population is at 55 percent, yet in the executive level only twelve percent holding leading positions are women (Kohaut & Möller, 2016).

Another aspect of the vertical segregation refers to the number of employees led by the superiors. While two-thirds of all leading employees assess that they are superior to another employee, male executives are typically in charge of 27 employees and female executives are on average in charge of 20 employees. This difference exists mainly due to the fact that women in leading positions are mostly employed in smaller companies and that women who enjoy leading positions in greater companies are seldom superiors in higher leading positions. With regard to the women in leading positions, it needs mentioning that the proportion of women aged 18 to 34 compared to the proportion of women aged 35 to 54 years who work in leading positions differs marginally by only one percent (31 percent for the younger group, 30 percent for the older group). Women above 55 in leading positions account for only 20 percent, which might be explained by the fact that fewer women earned a university degree 25 years ago than in recent years. However, a strong nine percent increase can be observed here from 2001 onwards (Kohaut & Möller, 2016).

While the age of women in leading positions seems to be influential, motherhood has further implications. 71 percent of all women in leading positions do not live in a household with children (until 16 years old). In comparison, the same amount for men accounts to 63 percent. Women in leading positions in West Germany generally give birth to their first child at the age of 29 years, which is three years older compared to other female employees. The situation is remarkably different in East Germany, where the average age of women having their first child and working in leading positions is 25 years (Kohaut & Möller, 2016).

Relating the first two dimensions to each other, Busch-Heinzmann et al. (2015) highlight that horizontal segregation is less extensive at the level of leading positions compared to non-leading positions. In 2013, 20 percent of women in a leading position worked in a traditional women's job and 64 percent of women in non-leading positions. This observation implies that women's jobs do less often offer leading positions compared to jobs which are traditionally categorized as male-dominated jobs. These so-called women's jobs inhabit a further characteristic, which is known as the gender time gap, mentioned as a third division of gender within labor force, and refers to the average working time of an individual.

Table 2-4: LFP rates and weekly working hours from 1991 to 2014 for women and men
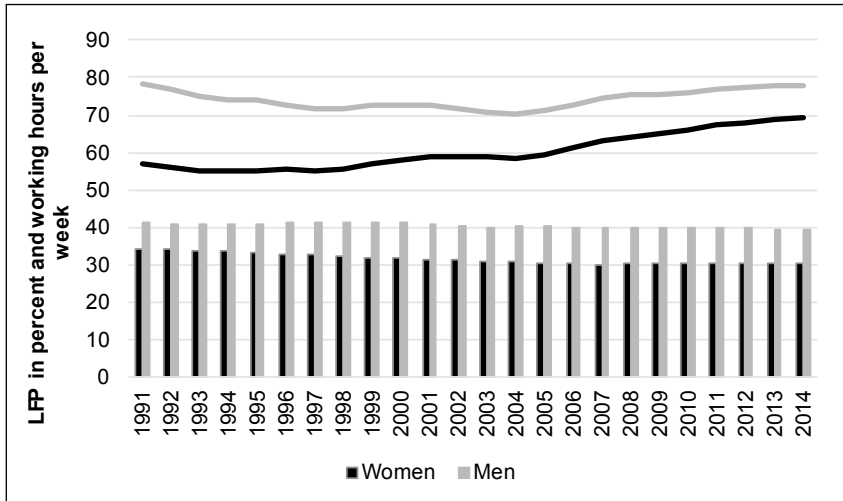
The table reveals that the employment rates of men decreased slightly from 1991 to 2000 by seven percent and then returned to the prior numbers by 2014. In comparison, the employment rates of women increased nearly constantly from 57 percent in 1991 to 70 percent in 2014 by 18 percent. The average weekly working time of men decreased from 41 hours to 39 hours, the average working time of women from 34 hours to 30 hours per week. Hence, it can be concluded that the number of employed women raises over the time, however the larger amount of working mothers is employed at a smaller level. Hence, the gender time gap has its peak in 1991 with approximately ten hours per week. Considering the aforementioned horizontal segregation makes these changes also occupation-relevant next to personal preferences of working time. Men in staff and technical jobs, for example, are often dependent on labor union decisions encouraging full-time employment. Contrary, jobs in the service sector inhabit predominantly working time with strong deviations from the standard employment relationship of around 38 hours per week (Hausmann, Kleinert, & Leuze, 2015). Thereby, it is important to note that deviations might inhabit a wide spread ranging from a minimum of one hour per week to more than 40 hours per week (Wagner, 2015). Therefore, a closer look is taken on the development of the working hours per week.

Table 2-5: Types of working hours per week in percent for women from 1991–2014
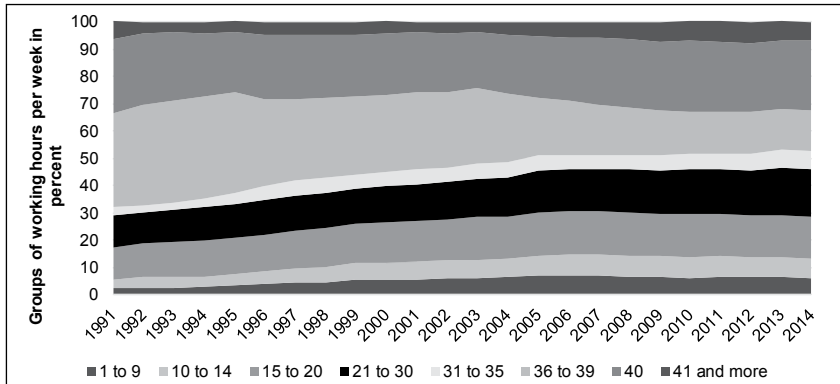
Nearly half of all employed women worked less than 32 hours per week in 2014. The distribution of employed women on the different groups of working hours changed substantially between 1991 and 2014. The proportion of women with an average working time between 36 and 39 hours per week declined by more than half. In 1991, approximately one third of all women worked this amount of hours. In 2014, around one seventh of women worked between 36 and 39 hours. Thereby, the proportion of women with a weekly working time of 40 hours or more declined until 2003 significantly, but increased in the following years. Furthermore, the proportion of women with a working time of less than 15 hours per week more than doubled in the observation period from six percent in 1991 to 14 percent in 2014. The proportion of women with a part-time volume of 15 to 31 working hours per week increased from one fourth of all women in 1991 to one third in 2014. The working time of 31 to 35 hours per week, which can be regarded as part-time employment, increased as well, nearly doubling by 2014. Regarding the gender time gap, an investigation of employment rates over a lifetime is relevant as well. Therefore, the following figure shows the employment rates of women and men in different life stages.

Table 2-6: LFP rates during life stages for men and women in 1980, 2005, and 2014
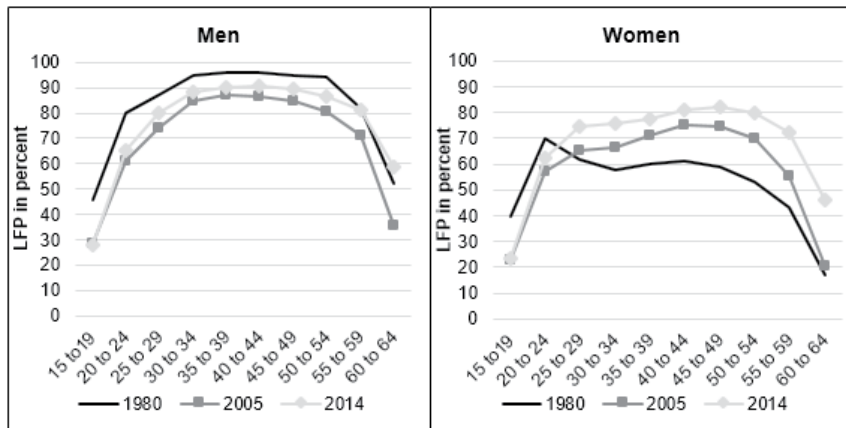
Source: derived from Statistisches Bundesamt (2004, 2016c)

The above table shows that both women and men enter the work force equally until the age of 24 in 2005 and 2014, and are both substantially lower than in 1980. The observations for the two youngest age groups are equally applicable to the LFP of men and women. It depends on the extension of education in general and especially tertiary education during the last decades. For all older groups, substantial differences between both genders prevail (Allmendinger, 2010). Above all age groups, the greatest divergence occurred in 1980s. While the LFP of men approach even close to 100 percent in certain groups, the LFP of women experience a setback during the years of birth giving and child raising. Over the life cycle, the LFP does not recover. While a drop also appears in the LFP of women in 2005, the employment rates increase afterwards again. Since the LFP of men decreases all about the life cycle compared to 1980 by about ten percent in each group, the rates of both men and women become far closer. In 2014, the LFP of men and women becomes closer above the three years. While the LFP of men increased from the level of 2005 again, the one of the women increased on an even stronger level. Next to the general rise over the life cycle, especially the drop after childbirth decreased substantially. Altogether, the table revealed that both LFP of men and women seem to be dynamic and converging over time, however still mainly distinct due to the drops in LFP during the times of child raising.

The three previously presented differences in male and female employment rates are distinct. Salary differences for employment between men and women can be regarded as a direct consequence. Korpi, Ferrarini, and Englung (2013) summarize that there are on the one hand individual characteristics like education and effort, and on the other hand inter-industry segregation as well as intra-industry segregation promoting an increase of the gender pay gap. Furthermore, labor market

institutions like the labor unions have an influential role, albeit to a smaller extend. Schäfer and Gottschalk (2015) analyze the gender pay gap in Germany. Equal pay regulations are covered by the 2006 General Equal Treatment Act (*Allgemeines Gleichbehandlungsgesetz)*, replacing an earlier anti-discrimination clause in the German Civil Code which was merely of nominal importance. The results of Schäfer and Gottschalk do not only reveal a 'wage penalty' for full-time workers in the female-dominated health sector as compared with manufacturing and finance, but also a substantial gender earning gap within each sector. With regard to the gender pay gap for employees in leading positions, Busch-Heinzmann et al. (2015) assess that the gap is currently decreasing, from 29 percent in 2001 to 25 percent in 2007 and further to 20 percent in 2013. However, this development appears to be less drastic, when one applies a standard median instead of the arithmetic mean[2]. Here, the gender pay gap has decreased only by two percent, from 29 percent in 2001 to 27 percent in 2013. In addition, findings speak to the gender pay gap generally being higher for women living in the former territory of West Germany than East Germany.

Women, however, can be analyzed further than in comparison to men, when one addresses women with and such women without childcare obligations.

Table 2-7: Age distribution and LFP of women with and without adult children in 2010
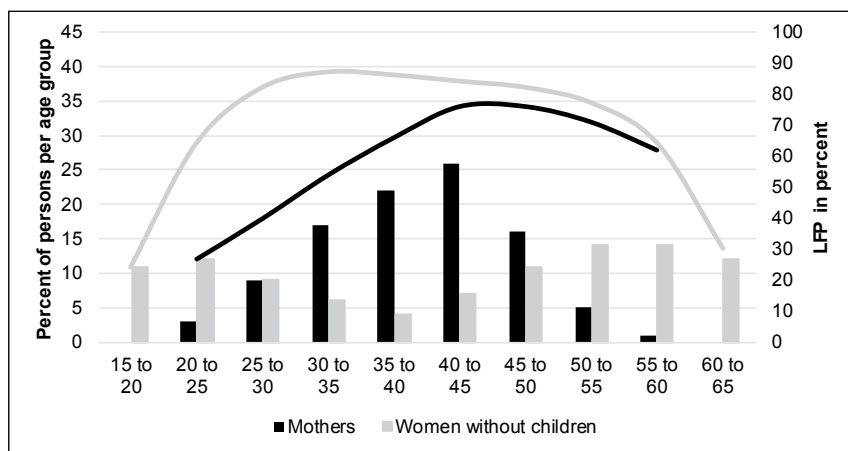
Source: BMFSFJ (2012b, p. 16)

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2   The median is often regarded as a more robust measurement to investigate income differences due to the possible minimizing of extreme values at both ends, while the mean is sensitive to any single value being too high or too low compared to the rest of the sample (Khander et al, 2010).

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The figure shows that the age distribution of the comparison group needs to be considered. Above 98 percent of the mothers with children below 18 years are between 20 and 55 years old. The figure reveals furthermore that during the time of life (age) that women enter motherhood, there is a drop of women in employment. The greatest difference concerns the age group of the 25 to 30 year old women. Afterwards, the LFP start to converge. The maternal employment rate just reaches the female LFP shortly before retirement age. Hence, work interruptions due to childbearing and raising have long-term consequences. The (re-)entrance into work is thereby the one important determinant for the long-term employment history of mothers (BMFSFJ, 2012b). Therefore, the next figure contains information on the working time arrangements of mothers with children below three years from 2006 to 2012. This time is especially worth mentioning since the child rearing funds, usually referred to as parents' money (*Elterngeld*), reform took hold in January 2007. It inhabited a paradigm shift of supporting an earlier entrance of gaining employment after childbirth (for more information, see section 3.6.1.1. "Historical flashback of monetary leave policies").

Table 2-8: LFP rates and working time of mothers from 2006 to 2012
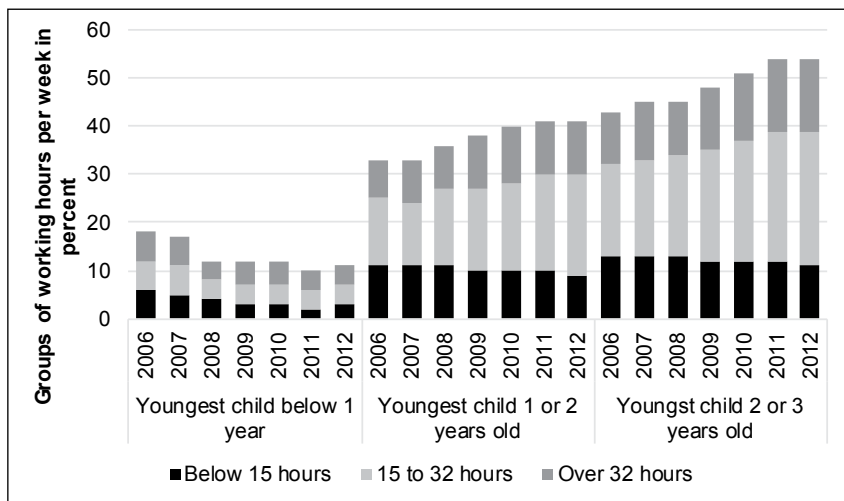
Source: BMFSFJ (2014)

The figure reveals that the type of employment of mothers is largely dependent on the age of the children. In 2006, 19 percent of mothers were working during the first year after childbirth. In 2012, the LFP of mothers in the same group decreased to ten percent. This implies that the reference period of one year, introduced within the parents' money reform, is comprehensively used. Forty-one percent of mothers with children aged one and two years old work. A number that rises to 54 percent when the children turn two. These numbers increased compared to 2006. The increase in

employment due to the introduction of the parents' money reform favors part-time employment between 15 and 32 hours per work, even though mothers working in full-time employment increased between 2006 and 2012 from eleven to 15 percent (BMFSFJ, 2014). This trend also appears in numbers related to mothers of three or more children below 18 years of age.

Table 2-9: Working time types of mothers by age of child and women without children in 2011
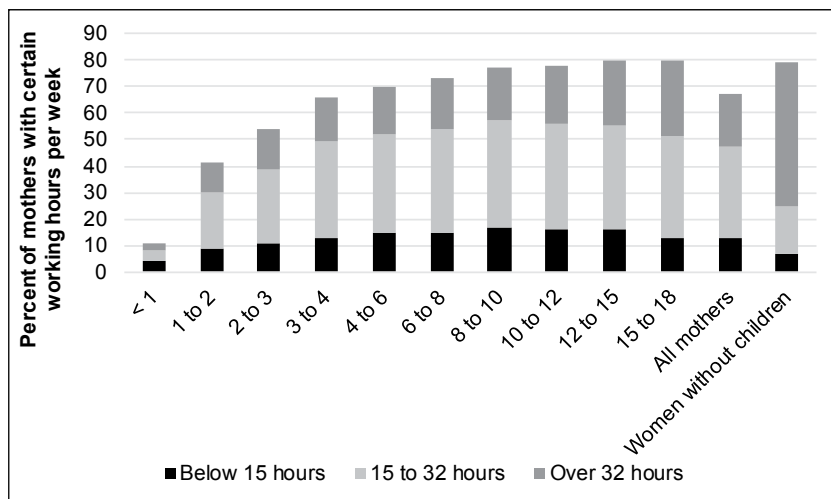
Source: BMFSFJ (2014)

The above table analyzes the working hours of mothers after the age of the youngest child and shows that the steepest increase can be observed for all three working time types from the first to the second year after giving birth. The employment quotes of mothers are just approaching a nearly similar level of LFP compared to non-mothers when the child is turning twelve years. The working volume is still remarkably smaller, even if the child is between 15 and 18 years.

It has been demonstrated earlier that there are wage differences between men and women. A "motherhood wage penalty" can be observed as well. Imagine there is a woman with a vocational education and giving birth at the age of 30. After a three-year work interruption and working part-time afterwards, she suffers from a gross wage loss of 190,000 Euro by the age of 45. In comparison, taking a one-year leave and working part-time for about five years leads to a loss of 150,000 Euro (Boll, 2009). Mothers interrupting their employment for a longer than the legally stated time are penalized in earnings. Especially mothers with a lower education experience a greater and often permanent reduction in their salary (Schmelzer, Kurz, & Schulze, 2015).

This section has demonstrated that the working volume of mothers is comparably lower compared to the one of men, and also to the one of women without childcare obligations. Therefore, the next section will approach in how far mothers are satisfied with the reduced working volume.

2.2 Maternal working preferences

The following section investigates preferences of mothers regarding their own employment status as well as exploring possible obstacles in increasing or lowering their work volume.

One third of mothers returned to their jobs between twelve and eighteen months after giving birth in 2012. 21 percent would like to return to work even earlier. Nine percent of mothers would like to return back to work after eighteen months after giving birth, 14 percent after 24 months or later (BMFSFJ, 2014). The BMFSFJ concludes that the interest in an early job return is high, but does not provide further explanations in regards to these preferences. IGES (2013) analyze the non-employment of mothers still at home with children aged four to six. The main reasons given for continued unemployment included missing childcare facilities, not finding an appropriate workplace, and inflexible working conditions. A divergence between preferred and actual working time does not only refer to the timing of the return to work after childbirth, but as well to the working volume of mothers with young children, who are in employment.

Table 2-10: Preferred and actual weekly working time of employed mothers in 2011
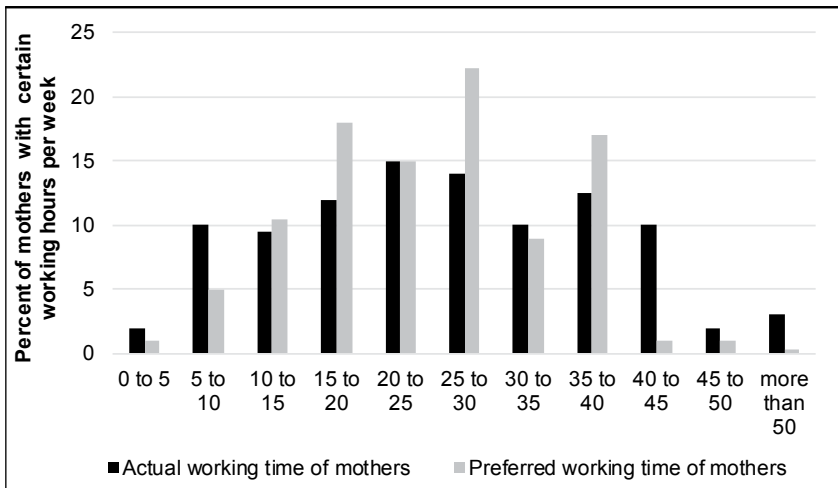
Source: BMFSFJ (2014)

There are several things to consider when analyzing the divergence between the actual and preferred working volume based on table 2-10: firstly, many mothers currently working with reduced working time up to 15 to 20 hours per week would like to extend their working hours. Secondly, many mothers would like to extend their working time to nearly working full-time (for instance 25 to 30 hours per week). Thirdly, around ten percent of mothers work more than full time (for instance above 40 hours), but just two percent would maintain this level of intensity.

According to BMFSFJ (2012b), reasons for not extending the weekly working hours differ substantially between mothers living in the former territory of West and East Germany. Mothers raised in former East Germany said that they would prefer working more hours, but state missing childcare does not permit them to do so. In former West Germany, many mothers state that being home is more important, thus "family reasons" are more important for them. These results can be supported by an older study from 2009 by Kelleter. Kelleter (2009), however, does not differentiate between men and women. He shows that 17 percent of the parents in former West Germany and 56 percent of the parents in former East Germany would like to work full-time, but do not find a suitable job. 51 percent of the parents living in former West Germany would increase their working hours if they had childcare options, while 17 percent of the parents from former East Germany would do it. An international study conducted by the Thomson Reuters and Rockefeller Foundations (2015) revealed that 21 percent of German mothers do not regard children as an obstacle for their career, which is the second to last place in this ranking. Over all G20 nations, an international forum for the governments and central bank governors from 20 major economies, 47 percent of the mothers supported this argument.

Children and maternal employment shall not only be seen in relation to work, but to mothers and their overall life satisfaction. Berger (2013) concluded that mothers who have left the labor force for family reasons, and mothers working part-time, are significantly less happy than mothers in full-time employment. Both the financial effects, like forgone earnings, and the non-financial effects, like psychological strains, play a substantial role in the lower degree of satisfaction. Moreover, these effects show to be particularly harmful to mothers in low-income households and those afraid of poor job opportunities. Overall, non-participation due to family-reasons like missing childcare is thereby revealed to have more harmful consequences on happiness for mothers compared to involuntary unemployment due to market reasons.

2.3 Role of childcare in maternal employment

One may assume that childcare is generally a private matter, decided on by individuals who are solely responsible for it. It thus may be of interest to review why childcare is heavily subsidized by the state, and also look at both the advantages and disadvantages of childcare alternatives. The following will trace the effects of childcare provisions on maternal labor before shifting the focus to family-friendly HRM, more explicitly to ESCC. How to approach ESCC in the broader field of HR

policies, its historical development, as well as its international outlook is an essential part of this section, as well as selected statistics on ESCC in Germany will be presented.

2.3.1 Reasoning of public childcare and childcare options

Childcare in Germany is organized by the state, heavily subsidized instead of being contracted to the private market. From a state-economic point of view, and more explicitly from within allocation theory, government intervention should be supported solely in the case of market failure. Such market failure implies the inefficient allocation of goods and services and might occur in one or several of the following cases: in case of market power as monopolies have the market power to set prices, in case of public goods to prevent the free rider problem, due to asymmetric information to prevent damaging consequences for consumers from poor choices and in case of externalities implying that there are (indirect) effects to other individuals.[3] The following paragraphs will address the different types of failures and relate them to childcare.

Starting with market power, the establishment of a monopoly requires that high fixed costs of providing the good must be confronted to variable costs of usage (Thater, 2015). This situation cannot be expected to occur in childcare: requirements and demands for human resources and facilities change with the amount of children.

Secondly, public goods have two main characteristics: They are non-rival in consumption, meaning that consumption by one individual does not affect the opportunity of another individual to consume the same good, and they are non-excludable, meaning that opportunity for consumption cannot be denied. Both attitudes of public goods do not apply to childcare (Samuelson, 1954). For instance, parents can be excluded from buying into private childcare due to free market price mechanisms. Rivalry in consumption creates an exclusionary environment. Moreover, Blau (1997) argues that the quality of a childcare facility may be influenced by adding just one additional child, negatively impacting the care of the other children.

Thirdly, asymmetric information flows may affect the selection processes of private childcare (Akerlof, 1970). Possibly, parents are not able to observe the provided childcare to assess its quality substantially. In such a case, private providers could reduce the quality of their provided care, if the higher quality of care is connected to additional costs. As a consequence, the provider of childcare with the lowest costs will remain the most profitable in the market. It is unlikely that asymmetric information in form of moral hazard is applicable here, as it implies that parents would complicate the provision of childcare by external providers. Until now, there has been less empirical evidence about the factors shaping the quality of childcare. Love, Meclstroth, and Schochet (1996) identify two categories to evaluate childcare quality, called structural quality and process quality. Structural quality refers to the

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3   For an extensive discussion on government intervention see Gruber (2004).

caring environment, such as group size, showing a significant but small influence on the development of children (Blau, 1997; Blau & Mocan, 2002). Process quality refers to the quality of the caring as itself: interactions between the staff and the children. Empirically, it is hard to prove a relationship between the process quality and the human capital accumulation of children. Mocan (2007) used 19 different characteristics in determining structural quality in evaluating the effects of adverse selection in (private) childcare. He found that parents usually evaluate the quality of childcare facilities correctly. However, parents do not use all available information to assess the quality. It is cost intensive to improve the quality of childcare facilities for the provider (Mocan, 1995, 1997). There could be an incentive for adverse selection. Government intervention due to asymmetric information thus might make sense. However, the availability of adverse selection does not necessarily imply market failure and thereby force the government to provide childcare. The sufficient condition implies that the government finds a more efficient allocation compared to the previous market. The state could also define minimum standards and remain responsible "only" for the supervision and certification of it.

Fourthly, externalities appear when disadvantages and advantages are not exclusively related to the supplies and demander of the childcare. The private provision of childcare could lead to an undersupply in case of positive externalities while it would lead to an oversupply of childcare in case of negative externalities. Private marginal costs and advantages would be balanced in an equilibrium, but social marginal costs and advantages would not be considered at all or just partly. Hofmann and Werding (2005) analyze the fiscal balance for one child in Germany over the life cycle of a child and found that the state is able to expect a fiscal surplus of 76,900 Euro for each child on average. 42,800 Euro are stemming from the child itself and 34,100 Euro are stemming from the children's children. Hence, from the purely fiscal perspective, the state might be interested in supporting additional children. Public childcare might be an instrument to pursue these interests by influencing the fertility as well as the reconciliation of family and work. The majority of studies supports a positive, but minor, relationship between childcare facilities and fertility rates (Del Boca, 2002; Hank & Kreyenfeld, 2003). Furthermore, the early provision of institutionalized childcare has a positive influence on the human capital accumulation of children (Gupta & Simonsen, 2010). Especially socially disadvantaged children benefit here (Heckman, 2006; Heckman & Masterov, 2007). An early education improves later labor market prospects, in turn improving expected employment profits. From a welfare perspective, early institutionalized childcare can be supported also because human capital accumulation reduces probable social costs. According to Heckman and Masterov (2007), early institutionalized childcare has a positive impact on latter criminal rates and unemployment rates. Next to effects on children's futures, employment rates of mothers tend to correlate positively (see section 2.3.2. "Stylized facts on childcare and maternal employment"). An increased female LFP affects the economy positively, for instance by reducing the pressure on the welfare state or addressing potential skilled labor shortcomings. Any evaluation of cause and effect chains in relation to the economy must also consider demand

and supply elasticities of labor. An increase in employment often goes along with a reduction of the actual wage level, which in turn might lead to reduced tax revenues. Thus it cannot be stated whether this effect might be smaller or greater compared to the advantages of additional employment (for example, increased number of tax payer) (Bergstrom & Blomquist, 1996).

Altogether, there is clearly some justification for government intervention in childcare due to market failures as a consequence of (fiscal) externalities. The possible challenge of adverse selection might be avoided as a side effect. Adverse selection is unlikely in case of state intervention since the state benefits from fiscal effects and additionally from well-educated children. A precondition of overcoming the adverse selection process could be that municipalities (*Kommunen*) assess the quality of their provided childcare facilities.

The legal and economic dimensions of childcare provision can generally be funded through two different legal channels, either as "object related" (Objektbezogen – §74 Kinder- und Jugendhilfegesetz) or as "subject related" (Subjektbezogen – §77 Kinder- und Jugendhilfegesetz). While object-related funding concerns the providing institution, subject-related funding is requested by those interested in the services rendered. The city-states (*Stadtstaaten*) provide more and more subject-related funding on childcare, while the area-states (*Flächenländer*) focus generally on object-related funding (Egbert & Hildenbrand, 2014).

Public childcare is predominantly financed by the individual municipalities. On average, they provide about Euro 6,700 per child in 2014. This is an increase from 2006 by over 52 percent, possibly due to the expansion of childcare to include children below the age of three. During this eight-year time span, the number of children being cared for increased from 3,000,000 to 3,430,000. There are substantial differences in childcare expenses within the federal states. Berlin spent Euro 9,400 Euro, while Mecklenburg-West Pomerania paid Euro 3,600 per child per year (Textor, 2016). Altogether, funds from the municipalities, states and the federal government amount to Euros 35.5 billion annually. While the state absorbs the main burden of the public childcare costs, parents are obliged to pay a contribution. Thereby, the prices vary between Euro 0 and 696 per month in the 100 biggest cities in Germany in dependence on the family structure (for instance income of both partners, amount of children) (Goerres & Tepe, 2013).

The object related funding is actually the predominant form of government intervention in childcare. Just from 2012 to 2015, one policy in form of subject-related funding was introduced: childcare was subsidized with funds directed at the parents (*Betreuungsgeld*). Parents received between EUR 100 and 150 for every child born after August 2012. These benefits were paid to the parents if they cared for their child during the second and third year of living without utilizing public daycare offers. In July 2015, the Federal Constitutional Court ruled that due to the lack of legislative competence of the federal state these policies were unconstitutional. The provision of childcare belongs to the legislative power of the federal states, and the introduction of the subsidy was and remains controversial. Supporters argue that experiences in other countries, especially Anglo-Saxon countries, show that the

subsidy can lead to a greater variety of childcare offers. Furthermore, parents are able to seek individualized care addressing their wishes and requirements (Breyer & Buchholz, 2008). Bünnagel and Henman (2007) argue that the effort by the state in children below the age of three reduces the freedom for parents to choose home care substantially, as it is connected to the expectation that parents start working early after childbirth. Thereby, childcare for three to six year old children is however supported by this group. Opponents of childcare subsidies argue that distinct societal groups would make use of the subsidy, like families with a lower income, less education, or those with a migration background. For the first group, it might influence the children's latter educational abilities, as it has been explained earlier. Concerning immigrant families, Boll (2015) argues that the subsidy may hinder the integration of children, especially if the parents are not able to speak German. Then, the subsidy would work as an anti-integration policy.

The media report frequently that the public childcare facilities should be expanded. Egbert and Hildenbrand (2014) reveal that the BMFSFJ is promoting the extension, but there are issues in infrastructure that need to be addressed. Regarding the financing, childcare is mostly financed by the municipalities over the federal government and federal states. However, they are just benefitting to a small degree from the expenditures. The tax revenues are collected by the federal government and para-fiscal institutions. There are fewer incentives for the municipalities to put effort into additional childcare. Furthermore, the object-related way of financing disregards the preferences of parents, which could otherwise improve the qualitative dimension of childcare. Another argument concerns the fact that childcare is generally assumed to be public responsibility including the recognition of the principle of subsidies. This implies that the municipalities can act selectively when choosing and supporting a provider creating, potentially, a market imbalance. Egbert and Hildenbrand (2014) mention that one-third of childcare facilities are provided by public institutions and two-thirds by non-profit institutions in Germany. High fixed costs and requirements intervene with the establishment of a commercial system. As a consequence, there is just a small degree of competition. Quality control may be affected through more competition since there is currently no pressure to compete and the users are not considered in the implementation process. This situation, however, looks different in other countries. Feierabend and Staffelbach (2015) observe a kind of crowding out effect for Switzerland in this context. Switzerland has a relatively high proportion of ESCC (17%) and a higher degree of parental involvement. Working parents' commitment to companies with their own childcare services is far lower than in less family-friendly cantons compared to family-supportive cantons with numerous public childcare services.

Egbert and Hildenbrand (2014), based on Becker (2009), argue that an increase in the education of skilled labor is central for quality improvement of childcare provision, linking quality of the employees and the quality of the supplied care. While the German system employs predominantly vocational education, most OECD countries do focus on a tertiary education here. It is not planned that the vocational education will be reformed. With regard to the tertiary education, BMFSFJ advises to employ

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in every childcare facility at least one person with a tertiary education until the year 2020. To achieve this goal, the amount of tertiary educated employees in the year 2011 must be doubled. As a consequence of the academization in this occupational group, the skilled labor with tertiary degrees would expect a higher wage, which could not be paid due to the labor agreements in the public sector. These persons would probably switch to the commercial sector then. As a result, the quality of employees would probably lessen in the public sector. Looking abroad, Brennan, Cass, Himmelweit and Szebehely (2012) argue for the Nordic and liberal care regimes, hoping for a paradigm change to take place. Childcare users change from citizens to consumers. The national governments need to adjust the provision of childcare to another behavior and claim of the users.

Esping-Andersen (2008) distinguishes between three kinds of childcare – familialism, purchased private care, and public responsibility. Obviously, the first one refers mainly to the parents, whereby the grandparents can also play a role here. However, this role is often limited due to external circumstances like the distance to their place of residence or the family members' health status. The second kind of childcare relates to private care, whereby parents outsource the childcare to a nanny, child-minder, au pair etc. The main characteristic of this kind of childcare is that it adjusts to the individual wishes of the parents. Public childcare facilities form the third group and are financed via the aforementioned government and co-pay options. Recent studies show that parents would like to use it, however, there is a tangible gap between demand and supply (Schober & Spieß, 2014; Spiess & Wrohlich, 2008).

Underlining the differences between the various kinds and to demonstrate the potential challenges in choosing one, the following table reflects a selection of advantages and disadvantages to be considered. While they might differ in individual situations, the following statements shall be regarded as general issues seen from the perspective of parents.

Table 2-11: Advantages and disadvantages of various kinds of childcare

| | Public childcare | Familialism | Private childcare | | Corporate childcare, focus: on-site childcare |
			Child minder	Au-pair	
Advantages	-skilled carer -appropriate equipment -deputyship due to illness of carer -social contacts & norms -structured day -mostly cheaper than the others	-individual childcare -flexibility -getting used to "older" people	-individual childcare -flexibility -stability and continuous as the contact person for children -familiar atmosphere	-individual childcare -flexibility -often bilingual -> early education -children can stay at home	-often directly next to workplace -flexible opening times -often financial support -needs of parents have high priority -appropriate equipment -deputyship due to illness of carer
Disadvantages	-often great groups -> difficulties for children to get used to it -ratio carer – children not good -> caring less intensive -no flexibility in terms of opening times (probably just on the country side, not in cities)	-no deputyship in case of illness of carer -dependence largely on the place of residence of (do they life close to the child) and health status -Generally „parents care, grandparents coddle"	-often less educated, but not always -no deputyship in case of illness or holiday of carer -expensive	-often less educated -no deputyship in case of illness or holiday of carer -constrained for one year -has many tasks -> not full attention for child	-child may lose contact to environment at home -facilities depend on company -> closing of facilities due to crises or change of owner -easy for employer to exploit that the child is cared

Source: BMFSFJ (2013a), Lenbet (2014)

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Summarizing the table, with regard to the advantages, the common issues of public and corporate childcare deal with equipment and staff offerings and limitations. Furthermore, both provide structured and organized days for the children. In contrast, the childcare within the family and private care are marked by individual attention towards the child and flexibility. Concerning the disadvantages, a major concern in public childcare might be less intensive individual attention. Private childcare might be less favored due to the lack of childcare-education of the caretaker and since it is hard to find a replacement caretaker in case of illness. One outstanding issue regarding the corporate childcare deals with the mixture of private and working life. The table reveals that the provision of childcare by the employer can have important implications when it is preferred over other kinds of care. Since the different kinds of childcare have its own characteristics, the next section will address the distribution of it.

2.3.2 Stylized facts on childcare and maternal employment

The following graph shows the development of children visiting childcare facilities for two different age groups.

Table 2-12: Number of children in public childcare facilities from 2006 to 2015
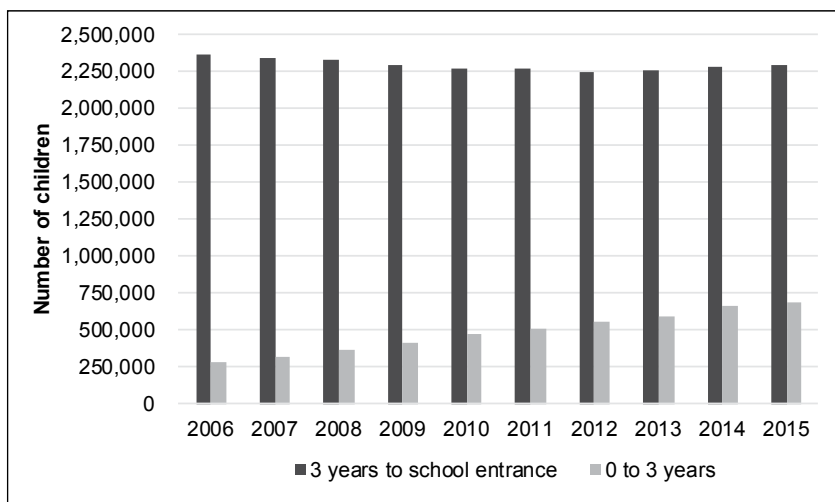
Source: BMFSFJ (2016b)

The amount of children below three years of age who are in childcare facilities has grown from about 290,000 children in 2006 to approximately 630,000 children in 2015. The number of children aged three to six with 2,300,000 children is nearly eight times higher compared to the younger age group. The absolute number must however be seen in relation to the proportion of all children cared for in an age group. In 2015,

33 percent of children three years and younger used childcare facilities. The proportion of children enrolled in daycare below the age of three years is in 68 out of 77 administrative districts over 50 percent. The preferred amount by parents, however, was at 43 percent, which makes a difference of seven percent. Ninety-five percent of preschoolers three years and older were enrolled in provided care. The preferred quota is just slightly higher. Seventy-three percent of employed mothers and 60 percent of employed fathers value the public childcare support as "important" or even "very important." Seventy-eight percent regard the external childcare facilities as a central requirement for their employment. Hence, parents value the provision of public childcare support highly, implying a certain degree of dependency. In line with this argumentation, restrictions in the provision of public childcare facilities hinder the employment status of many mothers. Altogether, 18 percent of all mothers regard missing childcare facilities as an obstacle for extending their working hours or starting employment, according to the BMFSFJ (2012b). This percentage is higher for single parents (22 percent) compared to family-unit parents (17 percent). With regard to the age of the children, mothers with children below three years have the greatest need for local childcare facilities with 21 percent. Mothers having children between three and six years regard the childcare facilities to a lower extent as decisive (twelve percent) compared to mothers with children between six and 14 years (17 percent) of age. A variety of provided care options may further explain these differences in polls.

Table 2-13: Care combinations of children in different age groups in 2013
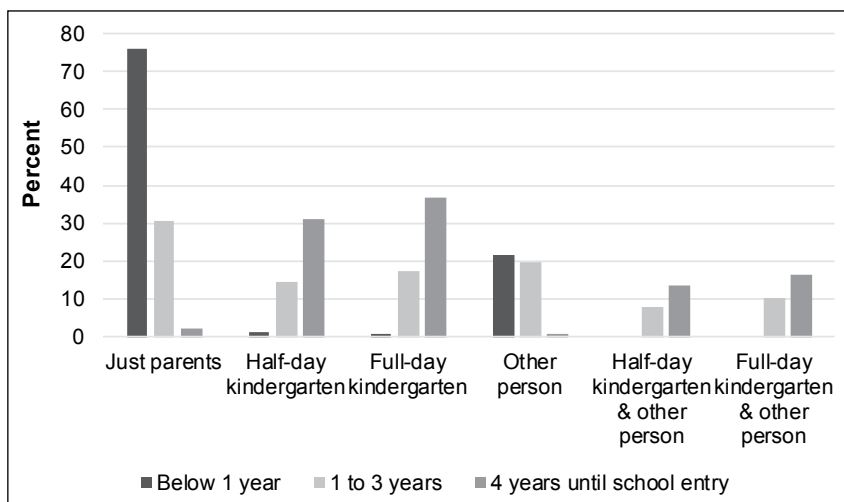
The table reveals that older children have a tendency to be cared for at facilities outside the family. Simultaneously, parental care contributions decrease. The groups

of interest, namely the children below one year and children between one and three years of age, are much more often cared for by the parents. The BMFSFJ identifies several socio-economic dimensions which influence the decisions of parents for certain care combinations. The proportion of children between one and three years who are exclusively cared for by their parents is twice as high in former West Germany (34%) than in former East Germany (15%). Single parents do rely much more often on informal care compared to couples. 20 percent of children of single parents until six years of age are cared for in full time facilities and by other people, whereas nine percent of the same age group are cared for in the same manner for family units. Especially in the first year of a child, 40 percent of single parents rely on care by friends and relatives, while just 20 percent of couples do. Other socio-economic dimensions include the amount of children in the family and the mother's employment status. Households which have three or more children use public childcare facilities less and often require less flexible care arrangements, as they rely on other people less often. With mothers employed full time, nearly one third of all children between one and three are enrolled in childcare programs. This number drops to nineteen for children of the same age group whose mothers work part time (BMFSFJ, 2014).

A redistributive perspective of public provision of private goods is often used as a further perspective to explain childcare preferences (Borck & Wrohlich, 2011; Stadler, 2014). Richer individuals prefer private provision to public or mixed provision and prefer mixed to purely public provision (Borck & Wrohlich, 2011; Stadler, 2014). Moreover, cultural preferences seem to be influential. Children whose parents immigrated are above all age groups more often exclusively cared for by their parents. With regard to inner-German cultural differences, Schober and Stahl (2014) make the following observations: Since 2006, there has been a significant rise in the probability of children with single mothers, or whose mothers have a university or vocational qualification, attending a daycare facility in former West Germany. For children, whose mothers have a low level of education, or whose parents are at risk of poverty, this rise was less pronounced. In former East Germany, considerable growth was observed in daycare attendance among children with highly educated or single mothers as well as of children at risk of poverty. However, mothers from former West Germany with a university qualification and single mothers in former East Germany still frequently make use of informal childcare options.

IfD (2013) found out that 75 percent of the parents expect early advancements in public childcare facilities if they enroll their children at the age of one. The parents expect a long-term benefit for the child, as well as the facilitation of the employability of mothers in the short-term. This expectation in early learning is an important consideration since the childcare costs are often higher than expected. Around three quarters of households state that they are well informed about the local childcare facilities. For example, two thirds of parents are aware of the fact that childcare costs are subsidized by private and public institutions. However, around 40 percent of the parents do not know the details of the finances of childcare costs.

With regard to the satisfaction of the parents using public childcare facilities, most are "satisfied" or even "very satisfied" (IfD, 2013). Around 13 percent of the

parents give a negative evaluation. Parents less satisfied often name the opening times of the facilities as problematic, with 20 percent of parents acknowledging a lack of flexibility. Afternoon hours do not extend far enough into the evening and closing time during holiday season extends too much to accommodate working parents. Camehl, Stahl, Schober and Spieß (2015) tracked the lowest satisfaction stats regarding both cost factors and lacking opportunities for parental involvement in the daycare center. With regard to overall satisfaction with the daycare center, however, cost plays no role at all — here the key factors are staffing and particularly the parents' perceptions of whether their wishes are taken into consideration. When parents are asked about the maximum amount they would be willing to pay for daycare, the higher-earning parents are generally prepared to pay more for a place for their child than they have done to date.

The following discusses maternal labor supply in case the state did not subsidize childcare, based on results derived from several micro-simulations. The first one contains the situation that parents had to pay the complete costs of childcare.

Table 2-14: Effect of subsidizing public childcare on LFP of mothers assuming no subsidies
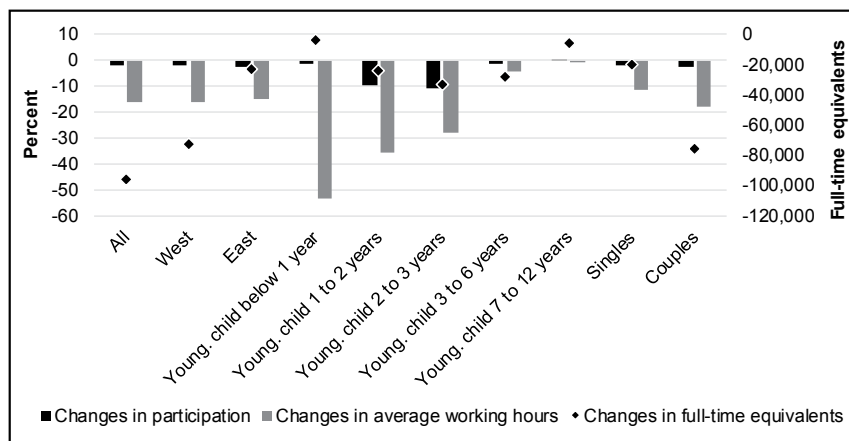
The results refer to the employment rates of mothers of children twelve years old and younger. In general, the employment rates of mothers would decrease by 2.2 percentage points if the subsidies for public childcare would not exist. This reflects a decrease in average working hours of 16 percent. In sum, the labor supply of mothers would decrease by 96,000 full-time equivalents. The effect is especially strong for mothers whose youngest child is between one and three years old. The differences among mothers in the former regions of East and West Germany are rather minor. Mothers in couples are affected more adversely than single mothers. Mothers who

live in a household with an income from the lowest two income sections are affected most severely. Their employment participation rates would decrease by three percent points and their working hours/week by 30 percent. The higher the income level, the less the effect of the missing subsidies. This raises the question of how these circumstances would change if there was unlimited access to subsidized childcare.

Table 2-15: Effect of subsidizing public childcare on LFP of mothers assuming no restrictions
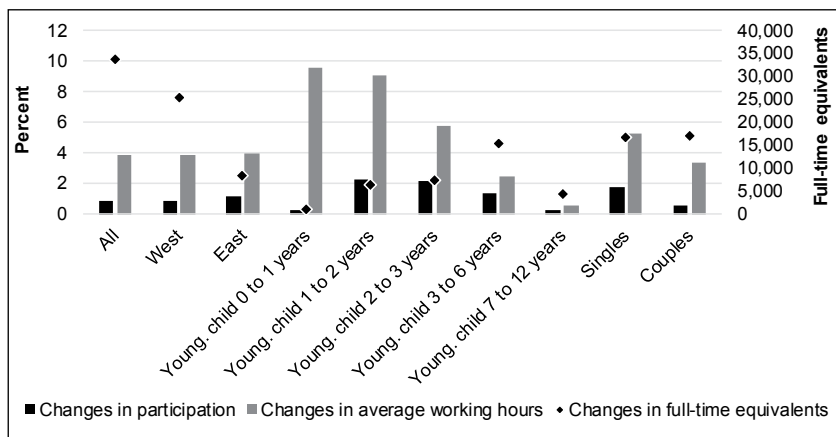
Source: BMFSFJ (2014)

The table reveals that public childcare facilities without restrictions would increase the number of mothers working full time by 34,000. This shows the clearest effects on mothers with children between the ages of one and three years, as well as mothers with three children. Again, mothers within the two lowest income brackets are affected more than mothers within the upper two income brackets. That being said, obviously single parents compared to parents living in a relationship benefit more clearly from subsidized childcare systems. Even if all costs related to childcare would fall to the government, positive effects would be traceable. The abolishment of fees would increase the full-time equivalents of mothers by 14,000 (BMFSFJ, 2014).

2.3.3 The state of employer-supported childcare

2.3.3.1 Framework for family-friendly human resource management

From a historical perspective, employers do not serve as lead providers of childcare, but are outranked by the state, non-profit, and religious institutions, as well as by the family. Therefore, it could generally be questioned why employers provide ESCC and more generally, offer family-friendly HR policies at all. This topic will be approached by (1) classifying base conditions and processes, (2) their intentions,

and (3) contents of employer-focused family policies (Gerlach, Schneider, & Juncke, 2012) using Rohe's established systematic approach for a policy processes analysis (1994). He calls the (1) *polity* dimension the analysis of the political structure, base conditions, and framework. This dimension investigates the prevailing order and orients itself on commonly applied norms. The (2) *politics* dimension explores actors and processes involved in reaching the intended goals. The (3) *policy* dimension refers to the actual content of the policies in place and their intended goals.

Starting with the *polity* dimension, the three cornerstones society, state, and union form the framework for family policies provided by an employer. The national society consists of the sum of individuals, the aggregating sub-systems of different groups, plus the inherent interactions. Companies can follow societal developments through their employees (Luhmann, 2005). Historically, a reconciliation of family and work is a relatively new phenomenon. During the preindustrial agricultural society, a separation of family and working life was not known. Families often lived and worked together. Children were raised not solely by the parents, but also by the extended family of siblings, grandparents, aunts and uncles, and live-in workers such as farm hands. During the industrialization of the 19th century, two kinds of family models emerged. Bourgeois families maintained a strict division of roles within the family. The husband generally worked outside the household in a productive manner and provided financially, while the wife concentrated on reproductive work within the confines of the household. Women did work when financial necessity required it. Proletarian families were characterized by both partners working, as financial need was constant. While the proletarian model was more common in 19th century society, the bourgeois model was idealized. The post war era, often called an economic miracle in Germany and elsewhere, in the 1950s and 1960s, enabled a more prominent spread of bourgeois families, also referred to as the Golden Age of Marriage. Throughout the next decades, the increasing number of educated women and their LFP lead to changes in the male breadwinner models (Gerlach & Laß, 2012). Nowadays, according to a study in *Unternehmensmonitor Familienfreundlichkeit*, over 80 percent of companies regard the reconciliation of family and work as a main challenge for the future due to societal developments (BMFSFJ, 2013b). Ten years earlier, only 47 percent of the companies acknowledged such a need.

Legally speaking, the state has the responsibility for family politics in Germany implying that it is responsible for the implementation of these policies. Furthermore, the rights cannot be executed by other legal entities, but must be pursued by the state. Other actors like trade unions, churches, charity organizations, and companies may, however, act in connection with the subsidiary according to the constitution. Legal statements regarding the voluntary provision of family-friendly policies by employers is rather abstract. It makes allowances to the distinct employer and employee specific needs and acknowledge the autonomy of decision-making processes by the employer (Gerlach, 2003). Corresponding norms can be found for instance in the law for part-time work and restricted work contracts, or in the laws on parents' money and parental leave benefits. The state holds several key roles: it is able to act in a legislative manner by mandating the introduction of an equal opportunity

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commissioner; in case that the state is not acting legislative, it may adopt the role of arbiter, moderator, coordinator, or even offer certain incentives (Gerlach, 2007). The state can help to implement certain regulations which are marked by a challenging implementation process. The state inhabits a moderating role if it informs and formulates common goals with other actors and connects them to networks. In this context, it might be relevant to raise the awareness of labor relations and union representatives for family-friendly HRM. The state acts as a coordinator if it is working with other actors on networks to establish local collaborations for certain challenges. It can provide incentives in form of affirmative actions which might include that certain assignments are dependent on the family consciousness. Well-known associations are for instance the *Bundesvereinigung der Deutschen Arbeitgeberverbände* or the *Deutscher Gewerkschaftsbund*, whose members promote family-friendly workplace conditions and negotiate for certain frameworks to be present in their labor agreements. Thereby, they can focus on working conditions, like flexibility, parental leave, or a leave of absence to care for relatives. Flüter-Hoffmann (2005) argues that the importance of topics like the reconciliation of work life and private life increased significantly over the time. However, the focus of labor agreements from 2006 to 2012 was not on family friendliness, thus much of the possible potential in negotiations has not been fulfilled (Klenner, Brehmer, Plegge, & Bohulskyy, 2013).

The second dimension is called *politics*, in which family awareness of actor behavior within companies is the focus. Who initiates family-friendly HRM? To approach this question properly, a short historical classification of the company as a social policy actor is helpful. The involvement of the company in its employees' family matters became standard procedure during the 19th century. During this time, it was known as *Fabrikwohlfahrtspflege* or *Industriewohlfahrtsarbeit*, both terms translating loosely to industry-related welfare. Companies were predominantly interested in increasing their competitive edge through motivating their employees and maintaining and reinforcing patriarchic-humanistic norms. Employees were educated, one could argue, in certain ethical, religious, and even legal standards. The reasoning followed a belief that employees who were well educated, even though more expensive, acted more economically and thus were more profitable for the company (Schäffle, 1958). This kind of management was institutionalized in the Concordia, an association of 80 companies founded in 1879. The organization focused on the promotion of the education of their workers, the provision of books, the establishment of affordable living quarters, and the foundation of work disability, orphans, and widow funds. At the turn of the 20th century, social policies of the Concordia companies started to follow the state's social policy. During the 1950s, critique towards the social policy of companies arose. It was highlighted that the families became dependent on the employer and were restricted in their self-determination. It was often regarded as a life rather than a work relationship. In addition, the stated goal of ethical-acting and educated employees was often subordinate to an efficiency-oriented focus. However, despite the critique, the social policy of the welfare state benefited from company policies. For instance, companies financed child benefits in full until 1964, via the family compensation fund. In 1959, family-friendly HRM were mentioned in the annual report of the *Spitzenverband der*

Deutschen Wirtschaft. In 2001, the *Bundesvereinigung der Fachverbände des Deutschen Handwerks*, a typically male dominated association, published a position paper on family and women politics. In 2002, Ver.di, a large German trade union with 2.2 million members, started a campaign to promote the reconciliation of family and work life. Generally, several initiators are involved when family-friendly HRM are introduced, today. These policies focus especially on employees with special functions for the company, like equal-opportunity roles. The introduction is mostly top-down, meaning that the management initiates the policies. Thereby, it does not matter whether private, public, or non-profit organizations are analyzed. In public-sector companies, political guidelines are important for the initiation.

There is a legal duty for work councils in their constitution that they shall facilitate the reconciliation of family and work. However, Döge and Behnke (2006) highlight that work councils are not known as initiators for family-friendly HRM since they do not regard it as a cross-sectional oriented operative policy field but as a downstreamed policy field. Factory agreements (*Betriebsvereinbarungen*) do not reveal to be a way to explicitly promote the reconciliation of family and work since they mostly focus on working time and home office regulations (Gerlach, 2012). Management regards family-friendly HRM as a tool to increase employee satisfaction, and in turn productivity. Economic reasons thus are one explanation for the involvement of first line management (Busch, 2004; Kelly et al., 2008), also known as the business case of childcare (Dickens, 1994). It builds on the assumption that the introduction of company-level social policies is a consequence of rational economic actors. According to this argument, companies can be expected to provide family-friendly measures if the benefits exceed the costs of the measures. It is often assumed that for companies operating in tight labor markets, i.e. in markets where certain skills are in short supply, the provision of company-level family policies can prove especially cost-effective. That being said, several authors (Dobbin & Sutton, 1998; Kelly, 2003; Kossek, 1994) observe that there are also institutional reasons leading to the spread of family-friendly HRM. Managers feel obliged to conform to coercive and normative pressures in society.

Policy refers to the content and goals of family-friendly HRM. Employers offer a wide range of possible measures to improve the reconciliation of family and work. These measures can be categorized either according to their content or in a systematic manner (Dilger, Gerlach, & Schneider, 2007). One example for a content-related order of family-friendly HRM is given by the audit berufundfamilie. The audit is initiated by the *Gemeinnützigen Hertie-Stiftung* and is an instrument for the management of a company. It was developed to promote family-friendly HRM meant to support the employer in the introduction of policies. Founded in 1999, more than 1509 employers with about 2.6 million employees have been certified by them. The audit is explicitly supported by national government (berufundfamilie Service GmbH, 2016). According to them, there are eight fields of operations: Working time, working organization, working place, information and communication, leadership, HR development, pecuniary constituents, monetary benefits, and services for families. The *Unternehmensmonitor Familienfreundlichkeit* by the BMFSFJ (2013b) identifies four main policy groups: flexible working arrangements (time and location), parental leave/promotion of working parents, aid

for child and elderly care, and finally, family services. Thereby, it is highlighted that the working culture within the company operates as a forceful institution.

The systematic approach builds on the meaning of time as the central challenge for the reconciliation of family and work (Spitzley, 2012). Spitzley argues that there is a competition between employer and employee over the resource of time. Hence, family-friendly HRM should aim at the reduction of conflicts due to missing time. All other challenges will be addressed in dependence on it. The BMFSFJ (2013b) reveals that flexible working arrangements belong, with at least 75 percent, to the options offered most often in the years 2003 to 2012. Mohe, Dorniok and Kaiser (2010) propose another classification. Primary measures focus directly on the employees and their work. These measures concern working time, working location, working process, content of work and work organization, such as job sharing and a transition to flexible working arrangements. Secondary measures aim at the financial and social support of the employees. They do not directly aim at the work itself, but rather affect the individual perception of employees, for instance health programs, childcare facilities, child bonus allowances or household/concierge services. Measures in the third category accompany the primary and secondary measures, including an employer's information and communication policy or the company's philosophy.

Focusing on the goals, Schneider, Gerlach, Juncke and Krieger (2012) structure the goals of the family-friendly HRM on a specific target group. Firstly, the immediate effects on the employees aim at an increase in work satisfaction, motivation, and the employee's loyalty. Secondly, there are indirect effects on current employees, like the reduction of absenteeism due to illness, highlighting that a reduction in stress positively influences productivity. Keeping employees in the company also effects customer retention since a high degree of fluctuation might cause consumer dissatisfaction. The third category focuses on the immediate effects on potential employees. The authors argue that businesses with socially responsible actions may develop a more positive image, which in turn may attract a higher quality of workers.

2.3.3.2 Outlook on employer-supported childcare in Germany

Background information: Limited international comparability on effects of family-friendly HR policies
Comparing the effects of labor market and family policies between two countries is difficult since there are large differences in the specific framework. For instance, in liberal regimes like the USA, the labor market is deregulated. This implies that there are fewer economic sector or regional working agreements but rather specific ones valid for one company. The vocational education is marked by on the job training. Coordinated economies like Germany are marked by a strong institutionalized relationship between employer and employees, which is inter alia promoted by labor agreements (Brewster et al., 2010). Next to the differences in the economies at large, family politics are dependent on different factors. The provision of childcare is dependent on the cultural attitude of the welfare state, the childcare coverage and supply, maternal employment and parental leave schemes. Hence, concrete instruments like ESCC might be introduced in countries with the same intention, but their effects vary substantially between the nations (van Lancker & Ghysels, 2013).

On a larger level, ESCC first spread in the USA, during the US civil war from 1861 to 1865, when several employers provided temporary childcare centers to enable women to support the manufacture of gunpowder or serve as nurses. At the beginning of the twentieth century, industrial day care nurseries were provided, since "factories needed cheap labor" (Friedman, 1984, p. 167). During the Great War and WWII, temporary childcare centers were again opened by employers to meet worker shortages, supported by the government. In post-war times, employers' interest in childcare decreased considerably, and many women returned home. The increasing LFP during the 1960s and 1970s then again increased the demand of childcare. Therefore, the federal government passed a law on tax amortization of constructed buildings used to serve employee's children. Employers regarded childcare as a potentially profitable investment, but this did not happen. In fact, 15 out of 18 on-site childcare centers opened between 1964 and 1972, but closed soon after their establishment. In the early 1980s, merely employers in industries with skilled-labor shortages and large female employment rates provided ESCC, for example hospitals. In 1981, the Employer Recovery Tax Act had the intention to stimulate the creation of childcare centers by employers, but "childcare centers remained rare" (Kelly, 2003, p. 608). However, the tax breaks represented the most expansive childcare policy in general. The federal government spent less money in funding public childcare facilities than it lost through these tax breaks. By 1997, the revenue loss was over $7.3 billion due to various tax breaks for employers supporting childcare. Instead of building childcare centers, many employers adopted dependent care expense accounts. The amount of expense accounts increased from 1965 to 1995 by 50 percent. (Kelly, 2003). The amount of childcare centers increased by ten percent over the same time. In 1965, just 2.500 of six million employers offered them (Diktaban, 1991), probably due to benefit consultants creatively linking these accounts to others programs, which they were trying to market. These programs (for instance cafeterias) were presented as a cheap way to attract employees. Kelly (2003) argues that these tax breaks did not promote female employment, although they were promoted as such. Primarily, the tax breaks for childcare centers were not tied to civils rights law (for example. an extension to gender equality acts), and tax laws "do not require employer action, but instead create an incentive for childcare programs" (Kelly, 2003, p. 622). However, it is not clearly stated how the companies were to make use of these incentives. Kelly states that the success of expense accounts for childcare centers depends on certain factors, such as marketing, expenses to maintain childcare, and the offered incentives' relevance to the company. Nevertheless, benefits consultants advised companies to adopt the least expensive policy that still showed family-friendliness. While the whole development did not reach its initial potential, it led the way in creating family-friendly programs in order to attract a strong work force (Diktaban, 1991).

Garnered from the developments in the US, one may arrive at the conclusion that ESCC was an instrument to promote female LFP in support of country and economy. State intervention through tax policies then offered an increase in profits,

whereby the benefits for the employees with childcare obligations could almost be regarded as a side effect rather than the originating purpose. Supporting research shows that the exact kind of support is rather secondary for parents. Connelly, Degraff and Willis (2002) note that it is unclear whether parents would opt for on-site childcare or stick to public childcare facilities when given the chance to choose. The survey conducted in the US revealed that a substantial number of parents would decide for on-site childcare, however, it was offered also as the cheapest option. The three main aspects when deciding between the options are location, convenience, and reliability. The study showed that parents who use on-site childcare use emergency care/family support less often than mothers who bring their child to a public kindergarten.

Nevertheless, it needs to be highlighted that different kinds of ESCC are available and have different advantages and disadvantages. BMFSFJ has published several publications on this topic since the "Förderprogramm Betriebliche Kinderbetreuung" by the German government subsidies on-site childcare spots with 400 Euro per newly established spot (2006, 2013a).[4] The "Förderprogramm Betriebliche Kinderbetreuung" has two goals. Firstly, the introduction of ESCC shall serve as a policy to improve the reconciliation of work and family for parents. Secondly, the policy shall serve as a way for employers to position themselves as a family-friendly employer. The program was extended after a two-year pilot program. Compared to the subsidies by the US, the German state considered ESCC rather late.

ESCC can be divided into two broad categories: regular care and punctual care. Regular care provides support throughout the year as the main caretaker of the child. This is, for instance, on-site childcare provided by the employer, kindergartens or licensed child minders. Punctual care serves as substitute care, meaning that the parents do not rely on it in daily life. It is utilized in emergency cases predominantly. For example, if public kindergartens are closed due to strikes or holidays, punctual childcare comes into play, but is not supported by the "Förderprogramm Betriebliche Kinderbetreuung". The need determines the kind of care families seek. Thereby, companies need to analyze the amount of employees' children possibly entering childcare, the age of these children, the preferred kind of care, the preferred place of care, and the preferred opening times. The needs assessment depends mainly on the company make-up. The following table shows the advantages and disadvantages of different kinds of regular childcare from both the employers' and the employees' perspective.

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4   For more information see http://www.erfolgsfaktor-familie.de/default.asp?id=632.

Table 2-16: Costs and benefits of different kinds of childcare assistance

	Employers' perspective		Employees' perspective		Costs of external childcare alternatives
	Costs and Disadvantages	Benefits Advantages	Costs and Disadvantages	Benefits Advantages	
On-site childcare (can be provided by one or several employers)	-Build the kindergarten -Maintenance and repair costs -Long-term obligations -Risk of economic utilization	-Freedom of design according to employee needs (e.g. opening times)	-Paying childcare contribution, which is determined by the district	-Less effort to find appropriate kindergarten -On-site childcare more flexible (e.g. opening times) compared to public kindergarten -Less effort for parents to bring their child to kindergarten(e.g. same way and location)	-Bring child to the public kindergarten and likewise pay contribution -Maybe different way and location compared to workplace -Capacities of local kindergarten can be busy -> difficult for parents to find a place
Rented spots in local kindergarten	-No freedom of design (e.g. opening times) -Employer mostly pays agency fees	-No building and maintenance costs -Use know-how of public providers	-Paying childcare contribution, which is regulated by the district	-Reserved childcare spot for parents-Less effort to find appropriate kindergarten	-Need to find appropriate childcare spot by her/his own -Capacities of local kindergarten can be busy -> difficult for parents to find a place
Support of parents initiatives	-Manageable workload for companies -> react as a supported	-Employees can design childcare according to their needs	-Huge financial and organizational workload for employees	- Employees can design childcare according to their needs	-Public kindergartens, which might be less costly, but have restricted freedom for parents in terms of opening times etc. -Parents initiatives are generally a huge workload for parents
Cooperation with childminders or family services	-Family services are demarked by external provider -Employers mostly pays agency fees	-Small financial risks	-Payment of actual childminder/au pair costs -Depends on reliability of childminder	-Employees might influence caring times -Support in organization of childcare	-Public kindergarten or private organized child minders with their costs

Source: BMFSFJ (2006, 2013a)

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Depending on the needs assessment, a company may choose to create and take on the responsibility for a childcare facility, offering proximity to the company and business specific flexibility. This model is especially interesting for companies whose employees are working at one main location. The facility needs to fulfill all legal and policy requirements for state child institutions. These requirements affect the choice in caretakers, the equipment, and the buildings. The company is then responsible for the incurred costs. Since company kindergartens often offer business-appropriate (possibly longer, year-round, and flexible) opening times, personnel costs tend to run higher than they do at a public kindergarten. However, the company can decide about the conditions of admission and the tuition share paid by the parents.

In case that demand may not warrant opening a single employer kindergarten, one possibility deals with the cooperation of several companies. These kinds of corporate childcare facilities can mostly be found in industrial parks. This permits both, for several companies to split the costs to create the infrastructure necessary, and to overcome fluctuations of demand down the line. However, cooperation requires a lot of coordination, possibly compromise, and long-term liabilities, which should be carefully considered.

Renting or financing kindergarten spots in local public kindergartens is another option. Companies may contract with a kindergarten, which includes that they have the right to use a defined amount of kindergarten spots for a defined time. In this way, the companies are able to offer reliable and individual arrangements for their employees. The BMFSFJ (2013a) states that this kind of support is useful when employees already use the kindergarten and the employees receive an assurance that the spot is secure or they can be guaranteed a spot for their second child. This is interesting for companies with several locations and allows company officials to solely rely on the expertise of the kindergarten staff, but keeps the business dependent on the capacities of the kindergarten and seldom offers a right of co-determination. Needs assessment still plays a role though in whether the company chooses to contract with a certain kindergarten or not. This model holds a financial interest for the kindergartens, too, as the reservation fee is added to the facility's profits.

Another model concerns the company support for parents' initiatives. Parents' initiatives are a rather new way of establishing a childcare institution.[5] Sometimes, there is no childcare available covering the needs of the parents, or the parents are not satisfied with the supply of childcare in their region. In this situation, parents can coordinate the childcare by themselves and establish their own kindergarten. There are various ways in which the company can support parents – either financially, materially, providing legal support, or by releasing them from their work tasks in some situations. The effort of the company is rather low here.

The two following models belong to the category in which companies support, foster, and extend the local infrastructure of childcare. It is known as "social

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5   See for more information: http://bage.de/menue/elterninitiativen/was-sind-eltern-initiativen/

sponsoring" and aims at an improvement of childcare provision in qualitative and quantitative terms (Busch, 2004). One example deals with the commissioning of family support services, whereby companies support information centers that offer parents moral and social support. Another example concerns the support of child-minders. Child-minders need to fulfill many requirements to be able to legally care for children. Companies can support them financially or materially (for example, providing rooms or tools), enabling caretakers to offer more spots to children.

The table reveals that the employees receive support by the employer through all kinds of regular childcare assistance. Support can be structured in several ways: aid in locating appropriate childcare, providing a greater degree of flexibility, and offering additional information. Next to this quantifiable support, employees may feel supported by the employer is the same recognizes and respects their existing childcare obligations.

The following focuses on the spread and nature of family-friendly HRM, and on the ESCC especially. Thereby, the focus is on the years 2009 to 2012 since this time span is covered in the empirical analysis as well. In 2003, about 20 percent of all companies in Germany did not implement family-friendly HRM. This amount decreased substantially to just one percent in 2012. In other words, in 2012, 15 percent of German businesses offered one to three different kinds of family-friendly policies. 33 percent of companies offered between four and six policies. Eight percent offered more than 13 family-friendly policies. It thus may be concluded that the importance of a family-friendly work environment increased significantly over the years. Thereby, the work environment is defined as the physical geographical location as well as the immediate surroundings of the workplace like the construction of the office building, the relation to the colleagues or working atmosphere (BMFSFJ, 2013b). The most spread policy can be found in the field of flexible working arrangements. In 2012, over 96 percent of the companies offered it. 86 percent of the companies offered measures in the field of parental leave or explicit promotions of working parents and 54 percent offered at least one policy on caring children and elderly in 2003. For the latter one, it can be observed that the supply of it first rose from 42 percent in 2003 to 61 percent in 2009, but then fell off. A similar trend can be observed for the field of family services, as it grew from 20 percent in 2003 to 39 percent in 2006, but decreased afterwards to 16 percent in 2003 (BMFSFJ, 2013b). Several policies have been abolished in the years in between, which seems surprising considering the aforementioned rise in family-friendly policy adoption in general (BMFSFJ, 2013b).

Data on ESCC are collected by several data sources, but reveal different results (Seils & Kaschowitz, 2015). In the following, the results of the *Statistischen Bundesamt*, the BMFSFJ, and the *Deutsche Industrie und Handelskammertag* will be presented and discussed. The following table contains the development of on-site childcare facilities and the share of on-site childcare compared to public childcare facilities as collected by the *Statistischem Bundesamt*. Their data collection process is a complete inventory account and includes duty of participation by the childcare provider, meaning that they need to register.

Table 2-17: Absolute amount and proportion of on-site childcare facilities from 2006 to 2015
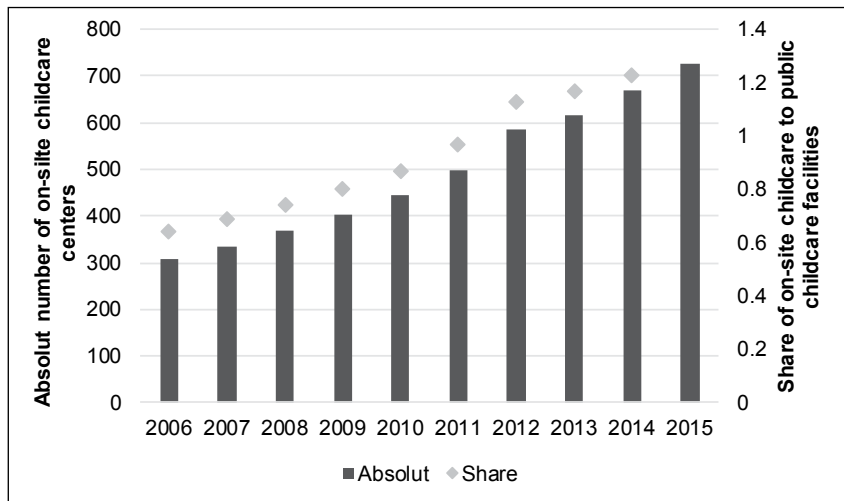
The table reveals that the absolute number of on-site childcare facilities increased by 42 percent in a consistent manner from 307 in 2006 to 726 in 2015. The share of on-site childcare facilities with 0.6 percent on all childcare facilities is rather low, but it increased nevertheless to 1.2 percent in 2015. The second data source is published by the BMFSFJ (2013b) and established in cooperation with the *Institut der deutschen Wirtschaft* and presents a voluntary cross-sectional survey for 1556 companies. The results were forecast to be representative for the whole population. Here, the kind of support was irrelevant, only ESCC measures in general were taken into consideration. According to them, two percent offered ESCC in 2003, four percent offered it in 2006, two percent in 2009, and three percent in 2012. The third data source refers to the *Unternehmensbarometer der IHK* (DIHK, 2014). Here, an online questionnaire was conducted by 1625 companies. The survey revealed that 16 percent of surveyed companies offered childcare. Nine percent of the companies offering ESCC in 2012 mention that they would like to expand their supply in the following years.

Seils and Kaschowitz (2015) compare the results of the different sources. They conclude that the results of the DIHK over-represent the large companies, and the BMFSFJ also neglects companies with less than five employees. Both results decrease to one percent when adjusting them with weights to the general economy. The authors present the following reasons for the low amount of on-site childcare centers: a lack of continuous demand (89 percent of all companies state that they have less than 20 employees and just one percent of the companies have more than 200 employees who are subject to social insurance contributions); and a high degree of administrative and fixed costs.

The last paragraph has revealed that some companies might be more interested than others to support family-friendly policies. As already mentioned, the availability of family-friendly HR measures increases with the size of the company as they tend to have a greater and more consistent demand for it. In addition, a larger percentage of female employees goes along with a higher probability of part-time workers, who make childcare support lucrative for the company in certain situations. There is no way to verify, at this point, whether this applies to women in leading positions and if they command a stronger family-friendly measures awareness within their company (Seeleib-Kaiser, 2011). The accessible data reveal that companies with a greater proportion of employees under the age of 40 offer significantly more part-time options and related services. Furthermore, there are significant differences between companies in former East and West Germany since family-friendly services are far more often provided in former West Germany. Also, companies with a large proportion of highly qualified employees often offer a more flexible schedule (BMFSFJ, 2013b).

2.3.3.3 Economic effects for a firm

To evaluate comprehensively the effects of ESCC on maternal employment, it needs to be highlighted that the company is not the primarily provider of ESCC. Consequentially, it cannot be assumed that companies will provide ESCC in the long run since it is costly for them and they expect any kind of return. Therefore, this section will shortly address the (monetary) effects of ESCC for the provider. As already previously mentioned, it can be differentiated between studies using public datasets and published in independent series or mission-oriented research, often conducted by companies.

With regard to the first one, Lehmann (2011) investigates whether there is a two-way relationship between corporate childcare and business success with the employer dataset of the IAB. He finds that business success is conducive for supply of ESCC but not vice versa. Especially medium-sized companies with unexpected monetary success want to provide benefits for their employees with childcare obligations. While a statistically significant reverse relationship cannot be found, the author argues that the possibility of a lagged relationship cannot be excluded. While the introduction costs are quite high for ESCC, the return might be quantifiable later. Bloom et al (2011) argue that there is a positive correlation between productivity and family-friendly HRM more general than explicitly ESCC, as long as it is not controlled for good management practices in form of operations of improving the work process, monitoring of employee performance and work incentives. While it can be rebutted that the policies have a negative impact on profit, they at least pay for themselves. Another study is published by the BMFSFJ (2003) and conducted by Prognos AG. The study quantifies the potential savings which can be achieved due to family-friendly HR policies. Here, hypothetical values are assumed, which are derived from empirical imposed data in form of controlling data from ten companies. The dataset is furthermore extended by qualitative amendments like interviews

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with HR manager. Then, three different scenarios are derived: Firstly, the basic scenario refers to a company without any family-friendly HRM. Secondly, the real scenario reflects saving for a company due to actual policies based on the empirical gathered data. Thirdly, the optimal scenario shows the maximal saving due to HR policies. For instance, the return-to-job duration is assumed to be twelve instead of 25 months long. For example, the model company saves money due to reduced fluctuation costs, reduced absenteeism or decreased reintegration costs. Thereby, the study bundles the effects of various policies like holding contact to parents in parental leave, childcare facilities or home office. Altogether, insufficient reconciliation of family and work could save between 55 percent in the real scenario and 78 percent in the optimal scenario compared to the basic scenario. The company's return would be eight percent or 25 percent, respectively. Mohe et al. (2010) evaluate this simulation highlighting that the distinct effects of individual policies should be distinguished to be able to comprehend the total sum.

Commerzbank AG has an on-site childcare facility for its employees in Frankfurt am Main (Commerzbank, 2009). Using personnel data and qualitative interviews, the authors investigate the monetary effects of the facility for the time period 2005 to 2007. The total costs were about 571.000 Euro, but these were significantly smaller compared to the benefits of 702.000 Euro. This results in a return on investment of 23 percent. Especially, the reduction of family-related missing workdays by 4.5 days lead to the positive effect. Furthermore, the authors highlight several non-quantifiable results like increased motivation. Another study was pursued for BASF (Then et al., 2014). After the introduction in 2006, Then et al. analyze the economic effects of an on-site childcare facility until the year 2011. The company acquired Euro 764.000 per year due to a reduction in long-term absenteeism and 115.500 Euro per year due to a reduction in short-term absenteeism. Furthermore, the company saved Euro 13.000 per year of reclassification costs. The users of the childcare facility had an additional income of Euro 355.000 per year since they could increase their working time. Lastly, the state acquired Euro 157.000 of tax income, Euro 226.000 per year on social security disposals and saved Euro 35.000 of parents' money per year. Hence, both studies conclude that there is financially a clear support of ESCC for the employer.

2.4 Concluding remarks

There are substantial differences between the employment rates of men and women, explained by work interruptions due to childbirth and rearing. As seen above, firstly, there is a vertical segregation implying that women are typically employed in certain occupations. Secondly, horizontal segregation prohibits many women from climbing to higher positions, albeit there are trends making upward mobility more of a prospect for women. Third, the working volume differs substantially for men and women. While the participation rate of females increased considerably during the last years approaching the one of men, the working volume decreased. Generally, it can be concluded that the smaller a company is, the higher the female

participation rate. A high participation rate goes along with a higher proportion of women in leading positions. Including the vertical segregation aforementioned, it is no surprise that certain economic sectors have a generally higher female participation rate and accordingly, employ more women in higher positions. This chapter also addressed that employment rates differ between mothers and women without childcare obligations, but that this gap narrows as the child ages, though a difference remains for the remainder of the woman's LFP. Several women would like to extend their working hours to up to 30 hours per week. It has been proven that full-time employed mothers reveal a higher life satisfaction compared to those working less. The extension of working hours is hampered, however, due to a variety of factors including missing childcare facilities.

The chapter reviewed social policy as a legally stated responsibility of governmental institutions, open to external actors, for instance companies, supplementing the system. Throughout history, companies have been found to offer support to their employees in terms of family issues in order to motivate them, making economic self-interest the companies' lead reason to function as a social policy actor. ESCC, partly resulting from this, is an instrument targeting one specific target group of employees. While it can be expected that non-users regard ESCC as positive, only parents benefit directly. Mohe et al (2010) rank ESCC as a primary measure as it directly supports employees with childcare obligations. The specific shape that ESCC takes, on- or off-site, does not matter in this regard, but rather the supply of general support.

3. Literature Review: Determinants of Maternal Labor Supply

The following chapter aims to present a widespread overview of determinants for maternal labor supply. Therefore, distinct categories offer insights on several factors as well as possible degree of interdependencies between single categories. Several factors emerge as additional explanations in several sections. The literature review focuses on Germany, but studies from other countries are complementarily used. The section on ESCC describes – next to the effect on the working volume – the effects on the working attitude.

3.1 Individual and household determinants

3.1.1 Partners and household income

Household income and marital status of a mother are usually addressed in union when discussing maternal employment, making the monetary aspect of the partnership a main focus of the investigation. Having a partner who earns more decreases possible financial pressures for non-working partners. On the other hand, social benefits from the state for the partner also may affect women's employment participation and work hours. In Germany, this is especially interesting due to the spousal tax splitting (*Ehegattensplitting*) (see section 3.4.2. "Taxation law"). The individual income of a mother has a different interpretation compared to the household income. In Germany, couples may tend to regard their incomes as joint income. In contrast to other countries, salaries may be interpreted as each partner's individual contribution to the common disposable income. Thereby, the common income "is converted into resources such as domestic work or recognition" (Ludwig-Mayerhofer, Allmendinger, Hirseland, & Schneider, 2011, p. 367).[6]

Ziefle and Gang (2014) analyze that mothers' employment rates in dependence on the partners' income differ significantly between mothers living in former East and West Germany. In West Germany, long labor market interruptions after childbirth tend to depend on whether the partner has higher earnings, no earnings, or if he is self-employed. Especially in case of unemployed partners, the mothers try to compensate the missing income with higher employment rates. A medium earning does not seem to influence the employment rates positively or negatively. Among East German mothers, maternal employment does not depend on the income of the partner. Focusing on the re-entry to work after childbirth, Hoherz (2014) demonstrates that men's resources have a significant impact on the decision to

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6   For instance, in comparison, in Sweden, money is often kept outside the relationship and regarded separately.

return to part-time work. She argues that on the one hand, partners with a larger income provide less financial motivation to return to the labor market, but that on the other hand, husbands with greater financial resources generally exercise more power within the family and feel less obliged to do housework or take on childcare responsibilities. With regard to a return to full-time work, Hoherz concludes that the financial resources of the partner play less of a role in the decision. Instead, the intrinsic work motivation seems to be decisive here.

During the years 2006 to 2012, there was a program called "Pro Kind". It aimed at improving families' economic self-sufficiency and family planning. The target group were pregnant first-time mothers and/or their partners who received social welfare or unemployment benefits, had an income that qualified them for social welfare benefits, or had excessive debt. Sandner (2015) concludes that the program decreased maternal employment, but increased life satisfaction and fertility rates. He argues that the program increased mothers' knowledge of welfare spending. Mothers, in other words, did not regard employment as their main financial base, but the welfare state support.

3.1.2 Marital status

The marital status is a further determinant of maternal employment which might influence the employment status positively or negatively. Generally, labor market attachment of single mothers is sometimes reported to exceed those of partnered mothers (BMFSFJ, 2009). This is observable for mothers who have teenaged children (BMFSFJ, 2012a). Focusing on single motherhood, two different lines of argumentation may be applied. Due to the missing second income, single mothers may have to deal with tighter budgets, which may force them to work rather than leaving them with a choice. It is also possible that single mothers who are eligible for a broader spectrum of social benefits are discouraged to work since the lack of income is offset by the benefits (Kreyenfeld & Hank, 2000). Having a closer look at the differences between single mothers in former East and West Germany, there are visibly more single mothers living in former East Germany (27 percent) compared to former West Germany (17 percent) in 2009. Jirjahn and Struewing (2015) examine two distinct groups of single mothers, those having out-of-partnership births and those having separated from their partner while their children are young. Here, single former East German mothers have greater likelihood of giving birth outside of partnerships compared to former West German mothers. In a similar vein, separation rates of parents to young children are higher in former East Germany as well. The authors explain this by noting cultural differences in love or partnership. Improved childcare facilities in East Germany, which allow mothers to reconcile family and work, or lower earnings, are not regarded as significant influences.

Hancigolu and Hartmann (2014) assess which determinants are more influential for entering employment after becoming a single mother. In general, they state that many women reduced their labor market participation shortly after becoming a single parent, but most can manage it over time. They regard the institutional

factors, like special benefits for single parents, as most decisive for employment decisions. Education is more importantly compared to the age of the mother in terms of individual factors. For mothers who do not need to rely on public childcare, transition into re-employment or an increase of working time is much more likely. Thereby, the role of informal childcare, especially of grandparents is elevated. Using the same dataset, Zabel (2015) tries to identify individual characteristics that may predetermine employment modes single mothers. Contrary to Hancioglu and Hartmann (2014), Zabel regards the mother's age as a variable: Entering single motherhood at a young age is associated with longer periods of non-employment. Regarding the education, she hints, a vocational qualification sets up mothers for part-time employment, whereas a higher education offers full-time employment, arguing in effect alongside Hancioglu and Hartmann (2014). The latter mentions a higher education as showing a strong link to full-time employment if the children are at school age; this observation, however, cannot be confirmed for vocationally educated mothers.

In another study, Zagel (2014) compares former West Germany and Great Britain. She highlights the importance of part-time jobs in the German economy as a way to return to work as a single mother. Across the board, labor market attachment of German mothers is higher than compared to British mothers. German mothers stick more continuous to one kind of employment, for example part-time, while British mothers tend to switch between different kinds of employment over the life cycle. Zagel (2014, p. 9) states that "trajectories are relatively predetermined" in Germany. Hence, if ESCC might support the return to work after childbirth positively, this might have positive long-term effects.

Zabel (2012) observes that participating rates do not differ between lone mothers and childless single women. Moreover, participation rates of partnered mothers from former East Germany are nearly as high as for single mothers. In contrast, the participating rates of former Western German coupled mothers are significantly lower compared to lone mothers or childless singles. With regards to the effects of participating in the programs encouraging employment by the government, Zabel (2013) observes for lone mothers that they benefit especially when they participate in vocational training. However, workfare, which is designed to increase participants' motivation for job search, does not inhibit a positive effect on the labor market participation of single mothers. Zabel regards missing childcare facilities instead of missing motivation as the primary reason.

3.1.3 Characteristics of children

Maternal employment depends on several characteristics of children. Preliminarily, the age and the amount of children dominate the decision to regain employment after childbirth. The gender of children does not seem to be influential here. Sommerfeld (2009) observes that maternal labor supply increases significantly with the age of the children. More specifically, it seems that other factors, for instance education or income, do not matter until the child has reached the age of two. Mothers

appear to be increasingly responsive to economic matters as the child is growing. First-time mothers do not reveal a significantly different behavior compared to mothers with children between four and six years, only for the age of two. This observation could be explained by the fact that mothers with a child between four and six already spent about six years outside the labor market, allowing them to re-enter employment more frequently or with more working hours compared to mother with a younger, older or no child.

There appears to be a strong relationship between maternal labor supply and the number of children. Whereas mothers with one or even two children still try to work while raising children, three or more children change this ambition. While 23 percent of mothers with one child do not work, it is 28 percent of women with two children, and nearly 50 percent of mothers with three or more children. Thereby, a significant relationship can be identified for the education. For all three groups, the likelihood of being employed raises with the educational level (Keddi, Zerle, Lange, & Cornelißen, 2010).

3.2 Employment modes

In this section, the influence of the employment mode of mothers will explore the kind of occupation, qualifications, previous career development, and individual income of mothers. Women with a high qualification in terms of an academic degree tend to also have a successful career development in terms of promotions, allowing the conclusion that this is a cause-and-effect model. However, the components do not always go hand in hand; for instance, it might be that women started to work at a younger age with a vocational education and experienced promotions before becoming mothers, differing from women with a higher education and a later start into work life.

3.2.1 Occupation

The type of occupation can affect maternal labor supply in two ways: certain occupations have specific conditions affecting the duration of a career break and some mothers may have to, depending again on specific related requirements, decide to or be forced to change their occupations after giving birth.

Concerning job characteristics, Stuth, Hennig and Allemndinger (2009) investigate sets of preconditions affecting women in different ways especially after giving birth. They differentiate between 111 groups of occupations. They focus on the last job the women worked in. Their results highlight that the type of occupation is a major factor when deciding whether to return to the job, controlling for exogenous factors like the economic cycle, change within the economic sectors, and the age of mothers.

The results suggest that a greater amount of working hours (for instance 46 or more hours as a hairdresser) increases the duration of career breaks. Occupations such as professional chef, who often are monotonous, repetitive, heteronomous, and

physically demanding also have rather long career breaks. The opposite effect seems to be in place for occupations which imply work on Sundays and public holidays, for instance waiters. These jobs allow for flexible and self-determined work schedules and shorter leaves (Stuth et al., 2009). However, not only the working conditions are decisive. Arntz, Dlugosz and Wilke (2014) highlight that less-educated women or women working in atypical employment modes have shorter work interruptions. Additionally, Arntz, et al (2014) demonstrate that occupations marked by a high degree of complexity have a higher probability of returning back to their previous employer in full-time and without a job change. Busch-Heinzmann (2015) describes that there is a significant amount of women changing from gender-atypical to gender-typical occupations over their life time. Lutz (2016) supports this observation by highlighting that psychological strains in the job increase the likelihood of changing the occupation. One exception concerns women with a psychologically intense occupation and an extraordinary income. They are likely to stick to their original job.

3.2.2 Qualification and career trajectories

Further, the level of education of the mother and her career development before giving birth influence the maternal labor supply. Kreyenfeld and Hank (2000) reason from the sociological perspective that the working attitude of high-level educated women is different than the one from lower educated women. They argue that higher educated women more often enjoy their work and work by choice. They also refer to the economic perspective by emphasizing that higher educated women are more likely to participate in the labor market since a high education is often associated with a higher income. On the other hand, it is observed that mothers with a low income are often forced to work to be able to maintain their standard of living, yet this observation shifts with the level of income of the partner (Spieß, 2011).

Konietzka and Kreyenfeld (2010) conclude that there is an educational divide growing over the last thirty years in Germany. As it has been demonstrated in section 2.1 "Male, female, and maternal labor force participation", a raise in maternal employment rates went along with a decline in total full-time employment. The authors argue that it is at odds with conventional wisdom that it was more common to be full-time employed for mothers during the 1970s than it is nowadays. Regarding education divides, the full-time employment rates decreased for all educational groupings. However, the strongest decrease has been perceived by less educated mothers. Increased part-time employment, including marginal employment, reinforces the findings in regards to growing education disparities. Part-time employment as the most widely spread of employment-model is highly stratified by education. The authors argue that the employment possibilities have been steadily worsening over the last three decades. Simultaneously, the welfare state supported incentives for mothers to focus on child raising. The authors demonstrated that parental leave policies have been utilized predominantly by less educated women, while higher educated mothers benefit from a range of possibilities – and likely a

strong work motivation – to sustain their careers. These policies have been pro-moted as providing a choice to mothers. As a consequence, the authors conclude that the dual breadwinner model is socially selective in Germany, leading to an in-creasing inequality in the future. These findings are supported by Drasch (2013) who examined that, remarkably, mothers whose children are born from 1992 onwards show a growing educational divide due to work interruptions. She argues that the leave duration that is related to the job guarantee seems far more important than the financial compensation of the leave.

Coming to the career trajectories, Fitzenberger, Steffes and Strittmatter (2015) use data of a great German financial company to assess the return-to-job charac-teristics of a mother after giving birth to their first child. In comparison to studies mentioned beforehand, this study analyzes the research question with data from only one company, focusing on the stability of employment after the job-return as well. For example, the parental leave system currently gives high incentives to have a second child, since benefits are means-tested, meaning dependent on the previous salary. If a mother has a second child while still being eligible to base her benefits on the salary before her first leave, she mostly receives higher funds than compared to the salary after the first parental leave. In short, their results indicate that the relative wage position, higher tenure, and an above average frequency of previous promotions, show a positive association with the return-to-job and the stability of employment after return. However, the authors argue that the assump-tion that mothers with a higher salary, a high educational degree, or an average frequency of promotions in comparison, do not foster the return-to-job at all. In terms of the qualification, they reveal that a combination of academic and voca-tional education shows the greatest working time after childbirth. Female workers do seem to get their first child at a specific time during their careers. These results suggest that a sizeable fraction of mothers with a successful career before first birth do not engage in similar career advancement after the first birth and have a probability of not returning to their job. This is especially hard for the company if they 'lose' female employees with a great amount of firm-specific human capital. A shortcoming of Fitzenberger, Steffes and Strittmatter's study includes that they have no information on the marital status or household income, albeit above re-search shows correlations. Hence, some of their results might have to be adjusted if including this information.

Arntz et al (2014) conducted a similar analysis. They make one additional ob-servation: there is an increased likelihood that women who have recently been demoted in the salary distribution deliver their second baby during the reference period of parental leave policies. Thus, it is likely that they return to their previous employer after a substantial period of work interruption. In comparison, women who were recently promoted before giving birth are more likely to change their employer. It follows that they perceive that they have options to improve their position on the job market.

3.3 Employer-related factors

3.3.1 Employer-supported childcare

3.3.1.1 Employer-supported childcare and the working volume

The subsequent section will investigate the role of ESCC for maternal labor supply. Since there is just a limited degree of studies on ESCC in Germany, international papers are included in the literature review as well. However, it should be noted that the comparability is relating to nation-specific circumstances (see section 2.3.3.2. "Outlook on employer-supported childcare"). Several studies do not explicitly focus on mothers, but on all employees. Studies with this work's explicit target group of mothers are rather rare. This section focuses on the relationship between work and ESCC. In the discussion, other effects of ESCC will be addressed as well (for instance work commitment or intention to stay in the company). All papers on ESCC are listed in Appendix A: "Overview on impact of ESCC on work behavior." Since the focus of this thesis deals with the effects of ESCC on maternal labor supply, the following outcomes are discussed more extensively compared to the remaining literature review.

There are currently two papers dealing with the evaluation of corporate childcare in Germany explicitly. While the first evaluation focuses on the pedagogic effects, the second one estimates the financial benefits for the state, the company and the parents.[7] Both studies discuss corporate childcare's effects on employment rates. The evaluation of the kindergarten "Kids & Co" hosted by the Commerzbank presents that in 2004 and on average mothers returned to work approx. 30.6 months after childbirth. Mothers giving birth in 2007 returned after 19.3 months (Commerzbank AG, 2010). The study presents statistics; therefore it is unclear whether the earlier return-to-job dates are due to the introduction of "Kids&Co" or something else like the introduction of the parent's money reform in the same year. The report on the kindergarten "LuKids" of BASF estimates that "LuKids" parents work on average three months more than non-"LuKids" parents do "by applying a matching approach (Then, Münscher, & Stahlschmidt, 2014, p. 25)"[8]. However, it is not clearly stated if they estimate it for a specific time span, for instance for the first three years after childbirth, nor do they supply information on the amount of working hours. The provided data in both studies go in the same direction, but the shortcomings muddy exact results for the task at hand.

There exist several studies on the relationship between ESCC and employment rates for the USA for the 1980s and 1990s. During this time, tax deduction policies

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7 Since both studies investigate the effects of ESCC, Appendix B „Overview on further effects of ESCC" lists all effects found in the studies, which will be discussed in more detail later.

8 Own translation: "Sie arbeiten im Durchschnitt 3 Monate mehr als Eltern, deren Kinder nicht in der LuKids-Betriebskita sind."

on childcare were implemented, explaining the wealth of literature emerging (see section 2.3.3.2 "Outlook on employer-supported childcare"). Divine-Hawkins and Collins (1983) observe the effects of childcare programs focusing on information and referral, flexible benefits, vendors, vouchers, flexible spending accounts, on-site and near-site childcare centers, and in-home childcare. Their survey among 415 employees revealed that around half the parents would increase their working time if the ESCC allowed it. One-fifth of the respondents said that it would not affect their employment decision. Lehrer, Santero, and Mohan-Neill (1991) observe the effects of ESCC in the working hours of nurses with childcare obligations, again in the USA. As one of the few studies on this topic, the authors focus on individual characteristics influencing the decision to increase labor supply when ESCC is provided. Thereby, nurses with a lower wage increase their working hours most likely when offered ESCC. These nurses increase their gross hourly wages by approximately $ 2.00. Other individual influential characteristics concern the marital status, as non-married mothers increase their labor supply more. Thereby, it does not matter whether the mother is single, widowed, or cohabitates with a partner. Mothers with more than two children are more likely to increase their working hours compared to mothers with one child.

Nowak, Naude and Thomas (2013) conducted a qualitative interview with 388 female employees in a health department in Australia, in regards to the time after birth at which they return to the workplace. The respondents again confirmed an earlier return should their employer offer appropriate childcare facilities. They highlighted amongst other necessary accommodations the availability of rooms and an appropriate work schedule to breastfeed. Otherwise, they do not regard company support as helpful.

The only study comparing the different effects of on-site vs. voucher childcare assistance is pursued in the USA, by Gullekson, Griffeth, Vancouver, Kovner and Cohen (2014). They investigate vouchers as one solution to reduce the cost of childcare assistance without reducing the benefits to the organization. The basis for this comparison is that companies regarded on-site childcare as too expensive due to high fixed costs. Using personnel data from employees in a hospital, the authors conclude that there are no differences between employees using the two programs to the extent to which the employees reciprocate to the organization. More specifically, there were no differences in the programs' administrators' perception of the programs' ability to increase retention, improve recruitment, or decrease absenteeism. However, their results have two important shortcomings: they have a very small sample size which cannot be regarded as representative, and they cannot differentiate between men and women due to the small sample size. Differentiating between both genders can influence the results substantially, since it can be expected that women respond heavier to child policies than men.

Anderson and Geldenhuys (2011) operationalize LFP in a different way. For South Africa, they analyze the impact of on-site childcare on absence. Having personnel records for one company with on-site childcare and another company without childcare, they are able to differentiate between absence frequency (total number

of times absent), absence severity (total number of days absent), attitudinal absence (frequency of one day absences), and medical absences (frequency of absences of three days or longer). Regarding the frequency of absenteeism, the total number of days absent, as well as the annual number of days absent, those employees without access to an on-site facility showed significantly higher absenteeism rates than those with such access to an on-site facility. The authors do not address differences between facility users and non-users, stating that "employees might experience the employer as taking care of employees by making provision for child-care, even if they do not make use of the benefit" (Anderson & Geldenhuys, 2011, p. 40). The authors cannot differentiate the results for mothers and fathers, but highlight that female parents generally have higher absenteeism rates.

3.3.1.2 Employer-supported childcare and the working attitude

Section 2.2. "Maternal working preferences" demonstrated that there is a divergence between actual maternal employment rates and the preferred working volume. This divergence might still be prevailing in case of provided ESCC since there are factors outside the power of employees determining the amount of working hours (Ehrenberg & Smith, 2012). Therefore, this part of the empirical analysis will focus on further effects of ESCC next to the narrow definition of maternal labor supply presented in the previous sections. All studies cited in this thesis on ESCC are listed in Appendix A.

Barel, Fremeaux and Michelson (2010) investigate the relationship between potential work-family conflicts and the provision of employer-driven childcare incentives in France. In their study, they do not differentiate between employees with and without childcare obligations as well as mothers or fathers. Nevertheless, they argue that the childcare policies do not guarantee a positive impact if a range of individuals and family constraints hint towards potential work-family conflicts. Furthermore, the perception of the work organization and the role of the employing organization are important. Corporate childcare seems to be able to decrease a work-family conflict if it takes employees constraints into account and inhabits a flexible approach. The authors derive the following conditions which should be fulfilled when ESCC will be effective in reducing a work-family conflict. Firstly, the policies need to be tailored to the real needs of the employee and the organization. Secondly, it must be designed in a way that as many employees as possible benefit from it. Thirdly, it shall consider the personal constraints, for instance day-to-day changing capacities depending on the working time. Ezra and Deckman (1996) differentiate as the only study between mothers and women without childcare obligations. Likewise dedicated in the field of work-life balance in the USA, they find out that the mothers show a significantly higher childcare satisfaction compared to non-mothers due to ESCC, which in turn influences their work satisfaction as well as commitment. One quarter of the mothers who are currently working in companies without on-site childcare were interested in being offered it. However, three quarters do not see an additional benefit compared to their current arrangements. Feierabend, Mahler

and Staffelbach (2011) investigate whether there are spillover effects of childcare support on employees without childcare obligations in Switzerland. These policies only have a specifically positive effect on the life satisfaction of employees with childcare responsibilities. Regarding spillover effects, a family-supportive dialogue and culture both reduce the intention to quit and enhance the organizational commitment of the entire workforce – whether or not there is a direct benefit to the employees. Especially the last results are supported by Grover and Crooker (1995). They analyze the effects of ESCC in form of information sharing and assistance in costs and find that employees showed significantly greater organizational commitment and expressed significantly lower intention to quit their jobs. Especially it is highlighted that all employees showed greater attachment, even those who do not benefit. Taking the life-course perspective, Roehling, Roehling and Moen (2001) highlight that ESCC inhabits a positive influence on the loyalty of women with school-aged children and older women with no children in the US. A stronger effect of ESCC on loyalty could just be accented through informal support by supervisors. The authors explain the nonexistence of a relationship between ESCC and women with pre-school children by the fact that the regular school for school-aged children is more time-invariant compared to care for pre-school aged children.

While the previous studies focused on the aggregation of several different kinds of ESCC or explicitly on on-site childcare, Morrissey and Warner (2011) focus on the effects of childcare voucher at a large university in the US. Although demand-side vouchers appear to be a promising employer approach to address childcare challenges of employees, the results suggest that attention must also be given to the structure of childcare supply as satisfaction and work-family stress are affected by more factors than childcare cost only. Lehrer et al (1991) examine that increased attachment due to ESCC to the company is especially high for nurses in the US. The nurses highlighted that they regard on-site childcare as very supportive to combine work and family. Remarkably, they mention the possibility of checking the quality of the care institutions more frequently compared to public childcare facilities since they are able to go there during breaks several times a day.

Goff, Mount and Jamison (1990) do not find a relationship at all between ESCC, work-life conflict and absenteeism of employed parents in the US. However, exceptional to the above-mentioned studies, they use personnel data of a company. While an individual company might be marked by a distinct working culture or HRM, the effects might be less comparable to the results of representative datasets. Using personnel data from a university in the US as well, it is shown that employees using on-site childcare were less engaged in and satisfied with their jobs when they either perceived their organization to be unsupportive toward their family life or were dissatisfied with their childcare provider. The authors argue that the provision of on-site childcare must be supported by an open working climate which supports the employment of parents (Ratnasingam et al., 2012).

The effect on a further outcome variable is examined by Casper and Buffardi (2004) for the US. They investigate in how far the provision of ESCC increases the intention of an applicant to apply with a company. According to them, dependent

care assistance is positively related to job pursuit intentions as well as anticipated organizational behavior. Grover and Crooker (1995) conclude that non-users value it while Divine-Hawkins and Collins (1983) conclude that non-users do not value ESCC and partly say that spending money on ESCC is waste of money. Barel, Fremeaux and Michelson (2010) agree to this finding by stating that it does not matter for applicants and job-searchers whether potential employers offer ESCC at least in France.

A different perspective is emphasized by Hoobler (2007). According to her analysis, family-friendly HRM, particularly ESCC, reinforce gender biases that degrade women's status at the workplace because women are the primary users of on-site childcare service. For instance, it might be that the women would use their lunch break to see after their children since they have the possibility to do so. Consequentially, (male) colleagues might consider this behavior in a deprecatory way. Rather, public family-friendly policies should be promoted.

Several studies have revealed that the effect of on-site childcare on the overall workforce perishes independent of the specific outcome variable. Three reasons have been identified for this (Rothausen, Gonzalez, Clarke, & O'Dell, 1998). Firstly, it might be that on-site childcare is too insignificant to affect the overall workers attitudes and behavior. Perhaps it is the totality of the family-friendly benefit package which may cause backlash, not just one benefit. The authors conclude that "family-friendly backlash may be more a media-sensationalized issue than a real one" (Rothausen et al., 1998, p. 701) since the topic as itself acquires large media attention. A second alternative is that although equity- and equality-based allocation rules may dominate in general in work environments, some specific issues, like employees' family issues, may elicit a more needs-based allocation value. The authors rejected the hypothesis that equity and equality-based norms exist in the workplace. The failure to support the statement could suggest that needs-based allocation values may exist in organizations with respect to on-site childcare. The welfare of families and of the next generation of citizens and workers may be affected by organizational work-family policies. Hence, strong family-supportive policies in organizations may affect future outcomes for society as a whole (for instance, crime, poverty). Thus, it may be that workers generally view family needs as legitimate reasons to use need-based allocation in the workplace. The third explanation refers as well to the equity-based allocation value. Childless employees may see the center as benefiting them because without it employees with children would likely be absent more or work less overtime, thereby possibly increasing childless workers' workload. This effect may overshadow any possible resentment of the benefit dollars that are being spent on workers with children.

Altogether, it seems that ESCC can, but does not necessarily have to affect the work behavior in a positive manner. Outstandingly, ESCC seems to be valued more profoundly if job applicants or new employees are asked for it compared to the core employees.

3.3.2 Further human resources policies

This section addresses the impact of other HR policies next to ESCC on the employment rates of mothers. Thereby, the policies of interest are home office, job sharing, and flexible working time arrangements.

About 55 percent of mothers with children below three years of age are able to use flexible working arrangements; the percentage is the lowest for mothers working more than 36 hours per week with 45 percent. On the contrary, 66 percent of mothers working 25 to 30 hours use it. Home office is used by 25 percent of all mothers with children below three years. Here, the highest value can be found by the group of mothers working more than 36 hours (30 percent) and the lowest value has the group of mothers working 15 to 19 hours per week with 12 percent (Lauber et al., 2014). Flexible working time is one reason why self-employed mothers are returning faster to work and with a higher work-volume compared to employed mothers (Schreyer, 2015). Several authors (Brenke, 2016; Weßler-Poßberg, 2014) investigate that home office use is generally marked by low usage. While the amount of employees working regularly in home offices was at approximately five million in 2008, it decreased to approximately 4.2 million employees by 2015. Generally, home offices are overwhelmingly used by male and junior employees. It is remarkable that it is more often used by employees without a partner. Weßler-Poßberg observes that single parents often regard working in home offices as additional stress. She concludes that working from home cannot be regarded as an instrument for the reconciliation of family and work, but rather as strategy for performance-oriented employees as it is mostly used by employees with a higher degree of education. The last statement is supported by Brenke.

Job sharing is defined as a full-time job which is pursued by two or more employees in part-time. The tasks of the job do not allow a single part-time situation. This model is used by employees who would like to pursue their career plan while raising a child. Within the international context, the proportion of Germans working in job sharing is rather low, only 15 percent in 2014. The use of job sharing opportunities in other countries examined is as follows: Great Britain, 48 percent of employees, in the Netherlands and Belgium 23 percent, and in Austria 22 percent. Eberhard (2015) analyzes whether job sharing leads to a happier life situation since the reconciliation of family and work is improved. Unfortunately, she does not differentiate between male and female job sharers. Her results indicate that 90 percent of the participants say that they indeed improved the reconciliation of family and work, and 40 percent did not see their careers suffer as a result. However, just 35 percent of the participants felt more productive, since arrangements with their job share partners are often extensive.

Two thirds of the mothers argued that they needed more than one HR policy to reconcile family and work. Although they do not use all of them always, the possibility of relying on them is important (Weßler-Poßberg, 2014).

3.3.3 Working environment

The working environment is an influential factor for maternal labor supply. Welteke and Wrohlich (2016) analyze whether peer behavior and social norms at the workplace play a significant role for maternal employment. The authors found strong evidence that women with female co-workers who returned to work early will do the same, explaining differences in maternal work-related decisions not only on national levels or private family characteristics. Having established that work environment clearly affects decisions, the following investigates which factors might be of interest in an analysis of the work environment.

Arntz et al. (2014) demonstrate that mothers who are employed in a firm with a great amount of female employees have a higher probability of delivering a second child, but are less likely to return to full-time work. According to their findings, a working environment marked by a large share of women puts less long-term penalty on working part-time or extending parental leave. On the opposite side of the spectrum, mothers working in a company with a very young average age are more likely pushed to find a new employer when they have a second child, as companies with a young workforce have a high degree of employees without children and rarely emphasize the reconciliation of family and work. The authors reveal that mothers working in small companies are less likely to return to their employers compared to women working for larger businesses. This might be dependent on HRM, usually more established in larger companies, and those offering part-time opportunities.

Work schedules are equally important in considering returning to work. Shift work for example inhabits the likelihood of returning to full-time work. Mothers are less likely to get their second child while being in parental leave, as well. And mothers in jobs that had high risks for over-time return to the workplace in part-time employment (Arntz et al., 2014). It is worthwhile to state that the availability of formal childcare reduces nonstandard work among parents and enables parents to work standard schedules. Considering how nonstandard work schedules are negatively associated with child well-being, access to formal childcare protects children from the adverse effects of their parents' evening and night work. Lastly, considering economic sectors, Weßler-Possberg (2014) compares family-friendly working attitudes in the private and in the public sectors. In 1994, the German constitution was reformed to include explicit sections on equal rights and the support of female employment in the public sector. In the private sector, efforts to legally require equality have not come to fruition, except for the introduction of a women's quota in 2015 (see section 2.1. "Male, female and maternal labor force participation").

3.4 Welfare state

The welfare state affects the maternal labor market attachment in so far as policies can increase or decrease incentives to work. Welfare state policies can be divided into four main categories: monetary benefits, taxation benefits, subsidies of

childcare, and social insurance related benefits. The interaction between the categories can have counter-acting or supporting effects. The following first explores the individual categories before analyzing any possible effects on the employment rates of mother.

3.4.1 Monetary leave benefits

Since Germany, and especially the former West Germany, is commonly known as a rather traditional country in the sense of maternal LFP, it makes sense to look at the history of German maternity-leave policies. Since the ESCC can be regarded as a very proactive policy to keep mothers in the labor force, it should be seen in context of the development of maternity leave policies. The second sub-section deals with the effects of these policies on maternal employment.

3.4.1.1 Historical flashback of monetary leave policies[9]

The starting point for West Germany's direction of the maternity policies began with Bismarcks's social question (*Arbeiterfrage*) at the beginning of the 1880s. He introduced a mandatory and occupation-related insurance system. This system was not only valid for the principal earner, but also for his dependents securing the worker as well as his family (Leibfried & Obinger, 2003). According to a law introduced in 1878, women giving birth were obliged to interrupt working for three weeks unpaid. In 1952, the policy was extended to twelve weeks called the maternal protection law (*Mutterschutzgesetz*). In 1979, working mothers could stay home for six months with a payment of 750 German Marks (around 380 Euro) according to the optional maternity vacation (*Mutterschaftsurlaub*). Both policies were "explicit financial acknowledgment of their right to care" (Erler, 2011, p. 112). However, fathers were implicitly excluded from them. Set into force by the governing Social Democratic Party (SPD), the Christian Democratic Party (CDU) disapproved them by stating that they limited the freedom of choice for women staying at home and taking care for the children.

A turning point happened in 1986 by publishing the parental leave law (*Bundeserziehungsgeldgesetz*) since it included fathers as well as working and non-working mothers. This law inhabited that parents had a six month-long mandatory leave period plus optionally a ten month-long leave period. Both time frames were paid with 600 Deutsche Mark (around 300 Euro). Furthermore, parents were allowed to work part-time (19 hours) per week. The goal of this reform was the facilitation of entering the labor market afterwards. Nevertheless, the governing party did not aim at extending public childcare facilities. Hence, the law was still in line with the goal of supporting the choice of being a housewife. In 1986 and respectively in 1992, the leave periods and their payments grew to 24 and 36 months. Non-governmental

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9   Parts of this description have been derived from the following paper: http://www.diw.de/documents/publikationen/73/diw_01.c.436290.de/diw_sp0625.pdf?

organizations as well as the opposing SPD agreed with these laws by the governing CDU. Nevertheless, the SPD criticized that the non-extension of childcare opportunities were hampering a "more gender-equal combination of work and family responsibilities" (Erler, 2011, p. 123). The opinion was supported by various evaluation programs concluding that just a very small amount of fathers took parental leave and many mothers did not decide to gain employment again.

In comparison to former West Germany, maternal employment was strongly supported in former East Germany. Politicians encouraged full-time employment due to the socio-economic situation. Simultaneously, the politicians tried to achieve full reproduction of the population. To achieve this idea, free public childcare facilities were extended covering close to 100 percent. Furthermore, the government offered curtails of credit after giving birth or payments to interrupt working for one year. However, strong political and social pressures influenced mothers decisions to return to work. Not surprisingly, former East Germany had one of the highest working mothers rates in the world with 91.8 percent in the year 1988. However, reasons like the unequal distribution of housework or disadvantages at work of mothers lead to a decrease of the fertility rate from 2.1 children per women in 1971 to 1.7 children in 1989 (Erler, 2011).

The unification of former East and West Germany in 1990 included the union of two different approaches concerning child raising. The negotiations ended with the bilateral unification contract (*Einigungsvertrag)*, which highlighted on the one hand the protection of the public childcare facilities in former East Germany and the hint for West Germany to work on policies to reconcile work and children (Felfe & Lalive, 2010). In the upcoming years, the "lack of political will to tackle the complex issue of intra-households role models" (Erler 2011, p. 124) and the importance of the economic situation of former East Germany neglected family politics.

In 2001, the child-raising benefit (*Erziehungsgeld*) was published. It included the aggregation of some minor reforms. Firstly, the leave could be taken by both parents at the same time. Secondly, parents could choose to take twelve months of the leave during a period of eight years. Thirdly, part-time work was allowed up to 30 hours a week. Fourthly, parents were able to decide between 300 Euro per month over a period of two years or 450 Euro per month over a period of one year. Fifthly, the governing SPD reduced the income ceiling from Euro 51,130 to Euro 30,000 for the first six months. This decision was justified due to the economic situation since it included a lower number of recipients (Erler, 2011).

The importance of family politics grew in the upcoming years due to the political, social and economic situation of Germany. Firstly, the old age pension system as well as the health system suffered from low fertility rates from the 1970s on in combination with population aging (Erler, 2011). Thereby, university graduates had with on average 1.3 children lower fertility rates compared to lower educated women (1.7 children on average) (Henninger, Wimbauer, & Dombrowski, 2008). Furthermore, a great dissatisfaction with the reconciliation of work and family resulting in low maternal employment rates as well as great salary gaps between men and women led to a change in the course of family politics (Auth, Leiber, &

Leitner, 2011). In 2005, the governing party changed from the SPD to the CDU. This change in government lead to a new direction in family politics, leading to the reform of the parent's money in January 2007. This major law had three main aims. Firstly, fatherly participation in child raising should be raised. Secondly, parents should not have any financial pressures in the first time after childbirth to be able to focus on it. Thirdly, mothers should enter employment afterwards easier (Wrohlich et al., 2012).

The type of transfer differed substantially between the previous child-raising benefit and the upcoming parent's money. As a means-tested program, a family had Euro 300 for two years when they had a net income of Euro 30,000 or respectively Euro 23,000 as a single parent. If their income was higher, the parents received nothing. On the contrary, as an earnings-related system, parents receive two thirds of the income they earned before giving birth. Thereby, the lowest benefit was Euro 300 for no income and the highest benefit was maximum Euro 1800 per month. Additionally, a low income part is considered to differentiate between non-working parents and low income parents. While the old system was valid for two years, the new reform included benefits for one year. Under the new system, parents were able to opt for a benefit for a period of two years with a replacement of thirty percent to address the shortening of the reference period (Erler, 2011). Additionally, two months are called "fathers months" including that the reference period increases to fourteen months when both parents interrupt working. Furthermore, a three-year job protection is included in this reform. Parents can work up to 30 hours per week. However, the earnings are set off to the allowances. Altogether, the new system is a "much more generous transfer with, in principle, universal coverage" (Kluve & Tamm, 2013) since it directs to all income groups. Furthermore, it is firstly explicitly addressed to fathers.

In August 2013, two very different policies took effect. One give parents a legal claim to subsidized childcare for all children aged one year and above, another was called 'Betreuungsgeld', which, as has been noted above, has since been decommissioned.

The parents' money plus (*Elterngeld plus*) was introduced as an extended version of the parents' money (BMFSFJ, 2015) in 2015. The reform aims at combining parental allowances and part-time work of parents. The entitlement period of parents can be extended if parents decide to work part-time after childbirth. Thereby, one month of the reference period of the parents' money turns into two with parents' money plus. In both reforms, the policies replace the loss in income by 65 to 100 percent, calculated on the basis of the previous income. Thereby, the sum of the parents' money plus "lies at maximum half of the monthly parents' money sum to which parents without part-time income would be entitled" (BMFSFJ, 2015, p. 4). This regulation allows parents to be more flexible after the 14th month after childbirth.

3.4.1.2 Effects of monetary leave benefits

Ziefel and Gangle (2014) assess in how far mothers respond to changes in leave entitlements. The analysis shows that mothers respond to various changes in Germany's parental leave program, including both entitlement extensions and incentives to return to work. Transition rates for a return to employment are low during times covered by parental leave entitlements, but they peak when entitlements are exhausted. There are five consecutive entitlement extensions between 1986 and 1992 that have been accompanied by respective increases in the duration of employment interruptions following childbirth. This upward trend has partly been reversed by stronger monetary and procedural incentives for shorter leaves implemented in 2001, but more consistently by the introduction of parent's money in 2007. Respective behavioral changes are observable among both East and West German mothers despite long-standing differences in gender culture and availability of public childcare, as was addressed above. Drasch (2013, p. 992) summarizes that "women tend to make use of the entire leave period, regardless of its legal duration."

Taking a closer look at the parents' money here, it was introduced to promote a fast return-to-job turn-around after childbirth. Thereby, it was designed to give high incentives to stay at home for one year but encourage women to return to work after. The reform replaced a program which paid means-tested benefits for up to 24 months and instead provides earnings-related benefits for twelve months, without a means test, and for all mothers.[10] As a consequence, the labor supply of mothers decreases in the first year after childbirth. In the second year, labor supply of mothers in East Germany and low-income mothers in both parts of Germany then increases again (Geyer, Haan, Spieß, & Wrohlich, 2013).

3.4.2 Taxation law

Taxation laws are relevant heredue to the spousal tax splitting in Germany. The spousal tax splitting refers to a procedure permitting spouses to file taxes jointly. This tax bracket may be categorized as a wedlock policy, not as a family policy. When taxing the income of both spouses, the income to be taxed is added and then divided by two. This result is then applied to the basic table of income taxes. The tax is then doubled. The spouses are thereby treated as if both parts would receive exactly half of the common income implying that they are taxed like individual units. The goal of spousal tax splitting refers to the taxation of a married couple according to their common economic success. Thereby, the economic stability of a family can be maintained more easily. The underlying presumption is that a married couple is regarded as one economic unit, guaranteeing that the overall tax burden is independent of the distribution of employment between both partners.

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10 For more details on the parents' money and to set the parents' money into context to the overall development of leave policies in Germany, see section "Short historical flashback of German leave policies".

The treatment as one economic unit leads to a discharge (splitting effect) due to the progressive nature of the income tax compared to individual taxing. The higher the disparity between incomes, the more beneficial the splitting. The highest splitting effect appears if there is one spouse who is the only earner in a family; spouses with the same income have a similar tax and therefore no splitting effect. Should both spouses belong to the top tier of taxable income (*Spitzensteuersatz*), no splitting benefits can be claimed. According to the BMFSFJ, around 11.2 million couples are benefiting from the spousal tax splitting. Around 88 percent of these 11.2 million couples do have children while around ten percent do not have children. Seeing its widespread use, the following will hypothesize the abolishment of the spousal tax splitting and its effects on the employment rate of mothers. The underlying assumption of the micro-simulation is that both spouses are taxed according to their individual income and not according to their common income. Hypothetically then, the volume of employment of married mothers would increase by 161,000 full-time positions (BMFSFJ, 2015).

Differentiating the results according to distinct family types, it can be observed that the spousal tax splitting most strongly affects the employment rate of mothers with one child. Here, the employment rate would increase by three percent if the spousal tax splitting was not an option. The decrease in employment due to the spousal tax splitting affording is the stronger, the older the youngest child is. Mothers of children above 13 years of age generally see a decrease in employment three times that of mothers with a child below the age of two. The authors see a decline in potential to reenter the workforce for mothers with older children over the time. In addition, the discrepancy of the mother's income compared to the income of the partner keeps increasing over time.

IGES (2013) evaluated the effect of the spousal tax splitting until the mothers' return-to-job. On average, mothers would return to their job one month earlier if the spousal tax splitting would not exist. Mothers who worked full-time before giving birth would return two months earlier. The effects of the spousal tax splitting should not just be evaluated for mothers with children who are dependents, but for their life cycle. Generally, families profit over many years from this tax system. On average, a household starting their family planning benefits for about 23 years from the spousal tax splitting. Nevertheless, the advantages are generally small before the age of 30 for women because of higher marriage ages and a lower taxable income (BMFSFJ, 2015).

3.4.3 Public childcare facilities

The provision of public childcare facilities influences the decision of mothers to work in so far as the mothers do not need to take care of the child freeing them to work without worrying about the wellbeing of their child. However, restricted opening times or access to childcare spots complicate the mothers' job search.

The state has begun to promote the extension of the infrastructure of public childcare facilities in recent years. In particular, the child-day-care expansion act

(*Tagesbetreuungsausbaugesetz*) in 2005 is intended to improve investments in public child day care. In former West Germany, public childcare was traditionally restricted to half-day care for pre-school children aged three years or older, whereas in the former GDR, the childcare infrastructure was very well developed. Child-day-care expansions are meant to improve the public day care for children under the age of three, guaranteeing one third of children in Germany a place by 2013.

The analysis of mothers' labor supply in dependence on the availability of public childcare choices is especially important as subsidized childcare is rationed and private childcare is only available at a considerably higher cost. Wrohlich (2011) conducted a policy simulation taking into account the restrictions experienced at public childcare centers. She analyzed the households' budget constraints with the underlying assumption that families who are restricted in their access to center-based childcare have the option of non-parental childcare in the form of privately organized care, albeit at a higher cost. The results show that mothers from former East Germany with children below the age of three with smaller day-care groups in close proximity were more likely to be employed and to extend their working time. The negative association of high child-to-teacher ratios was marginally significant for mothers living in West Germany with children in the same age. For mothers with children above the age of three years, the child-teacher-ration was unrelated to employment hours for mothers from both East and West Germany.

Next to the provision of and restrictions to public childcare facilities, the costs affect maternal labor supply. Wrohlich (2004) found that childcare costs have a significant effect on the labor supply of mothers. The labor supply elasticity is with respect to a one percent increase in the hourly price of childcare are small though significant. Increasing private childcare costs by 25 percent would result in a decline of the LFP of mothers by one percent. Finally, if childcare were free for all households, mothers' LFP would rise by three percentage points in former west and 1.5 percentage points in former East Germany. The reason for the difference between the effects in former East and West Germany is that both, labor supply elasticities of women and the childcare costs (as percent of net household income), are higher in former West Germany.

Schober and Spieß (2014) reviewed if subsidies on day care, financed by increased taxes, can raise welfare by encouraging women with small children to work, in other words they questioned the effects of distortionary taxes on labor. According to their analysis, the reform that maximizes a distribution-neutral social welfare function involves subsidizing day care at a rate of fifty percent and leads to a near doubling of labor supply for mothers with small children. The overall welfare gain from this reform corresponds to a 0.4 percent increase in consumption.

3.4.4 Social insurance related benefits

Public healthcare in the welfare state system may also be influencing maternal employment (*Gesetzliche Krankenversicherung*). In Germany, one spouse may be freed of contributions in the case that they are not paying social insurance contributions

themselves, or are self-employed. The BMFSFJ (2014) published the results of a micro-simulation assessing the effects of this policy on the employment of women in general and mothers in particular. They presume the counterfactual situation that contributory-free insured spouses have to pay a monthly lump sum of Euro 132 for health and long-term care insurances. This is the contribution which is currently paid by unemployed insured people for health insurance and long-term care insurance. The micro-simulation assumes a non-profit or revenue-neutral system. This means that the additional income by the previously contributory-free people leads to a decrease in the insurance contributions of all, considering changes in the employment behavior of employees, who are normally not affected by the policy, like singles.

This analysis can have two different outcomes. On the one hand, it might be that the newly introduced contribution is like a new tax for the target group, reducing or discontinuing their employment. Thereby, the target group would now need to pay a higher proportion of their gross income to social contributions, leaving them with a lower net income. This is also known as a negative substitution effect. On the other hand, there are incentives with a work-time-expansion, since one needs a higher gross income to ensure a certain net income. This is known as an income effect.

The situation can moreover be regarded as a second-earner effect for couples since the contribution-free insurance can be worthwhile for spouses, if just one partner is employed and obliged to pay the social insurance contributions. Thereby, the partner receives the same insurance benefits without paying the contributions. Marginal employment does not require social insurance contributions either, making work in this group enticing also. The results show, that the contribution-free insurance situation trends to lead to lower employment rates for women. The volume of employment is reduced by 100,000 full-time equivalents of women. Two thirds of this reduction in the female employment rate go to married mothers. Married mothers decrease their working volume by 67,000 full-time equivalents due to the described second-earner effect. The effects are stronger for mothers with one child compared to mothers with two children. The effects show the strongest decrease in employment for mothers who have children two years of age or younger. The results vary between income quartiles of the mother. The mothers who have an income in the third income quartile are employed significantly less often. Mothers within in the second and fourth income quartile reduce their work time less drastically, due to the contribution-free insurance system. There does not seem to be a difference for mothers who have an income within the lowest quartile (BMFSFJ, 2014). A study by IGES (2013) revealed effects of the contribution-free insurance system on the employment rates of mothers and their return, now later, to their workplace. They noted that mothers indicated an earlier return to work, on average three months earlier, if this system were not in place.

Mothers suffer from substantially lower old-age insurances due to labor market interruptions after childbirth. Therefore, in 1986, the government instituted a compensation for years spend raising children full time. The law was reformed in 2014 under the name mothers pension (*Mütterrente*). The reform included that two instead

of one year of child-care years for all children born before 1992 will be considered when estimating the old age insurance for mothers. Haan and Thiemann (2015) analyze whether the child-care years in the statutory pension schemes influence the mothers' decision of when to return to their job. The authors concluded that mothers do not react to the pension compensation. The result implies that the increase in retirement funds for mothers has no effect on their employment status. The authors suggest that mothers do not consider the level of their retirement at time of starting their families. Looking at the life-cycle effects of the policy, the contribution-free policy might have long-term effects. This benefit reduces the labor supply of married women – and especially mothers – after marriage. As a consequence, the reduced labor supply due to the insurance system may have long term effects, which cannot clearly be isolated.

3.5 Personal attitudes and further determinants

Moving away from the external circumstances or determinants related to the cognitive abilities of mothers (for instance, it can be assumed that the IQ influences substantially the education) addressed above, this section will address cognitive skills and connected issues directly.

Generally, the health status of an individual is a determining factor for the degree of LFP. Regarding maternal employment, it is observed that females, who assess their health status as less than average before giving birth, are less likely to return to work after giving birth (Michaud & Tatsiramos, 2011). Personal attitudes of mothers towards financial security (Gauthier, Emery, & Bartova, 2016) play an important role for some women, as they want for the financial security and independence afforded by their own salary as well as the partner's income.

Berger (2013) analyzes the effects of non-cognitive skills at the time of reentering the work force. There are two potential impacts, one, the overall labor market attachment might be affected by non-cognitive skills, and two, these skills form the perception of mothers' attitudes on caring for the child by herself or using external childcare sources. The author targets the locus of control, the "degree to which an individual perceives that success or failure in life follows from his own behavior or attributes versus the degree to which he feels that it is controlled by forces outside of himself and may occur independently of his own actions" (Berger, 2013, p. 24)." Berger concludes that females with a strong belief in external control as well as agreeable women tend to delay their work return substantially longer. Mothers with an internal locus of control expect returns of labor market participations in the future and are hence likely to invest in it. Furthermore, mothers with an internal locus of control are more likely to look for a solution for the reconciliation of work and family.

Gangl and Ziefle (2015) highlight that German parental leave policies influence the social norms of mothers, which in turn influence their work commitment. They conclude that the shortening of parental leave, for instance in form of the parents'

money, increased the work commitment of mothers with young children, especially with mothers working full-time.

The subsequent section focuses on determinants of maternal labor supply which are not covered by the previous sections. These determinants are not regarded as decisive for the decision of mothers to increase the labor market participation, but can be influential in certain situations. The following will take a closer look at the social support network, differentiating between the family-dependent network and the non-family dependent network, and at the local labor market situation.

The following paragraphs examine in how far the informal social networks play a role for the decision of mothers to work. Thereby, the role of the informal network is twofold. On the one hand, the informal network can be regarded as an additional source for childcare. For instance, friends, neighbors, or other acquaintances can help in emergency situations, for instance, in case of unexpected overtime. Parents who prefer a child-minder over public childcare facilities often choose one from within their familiar network. And the informal network often provides information and shares experiences, providing often helpful tips and advice, especially when given by familiar people.

One major childcare resource concerns grandparents. Assave, Arpino, and Goisis (2012) examine, in a multi-nation study, the relation between grand-parenting and maternal labor supply. Former East Germany was excluded from the analysis due to a small sample size. Newlywed mothers were included to evaluate the effect for a homogenous group of people. Controlling for the availability of public childcare, they examined a positive association between the two variables in Germany, France, Georgia, Hungary, and the Netherlands. There was no association at all in Russia and Bulgaria. In Germany, interestingly, the association between the availability of part-time jobs and grand-parenting is significantly higher than in the other countries. Looking at differences within Germany, it appears that the relationship between couples and their parents deepens when they have their first child. They contact each other more often once the woman is pregnant both in former East and West Germany. Former West German mothers depend more frequently on their parents to aid with the child (Klärner & Keim, 2011). Grandparents are found to also often support the couple financially. Former West German grandparents are frequently asked for advice about child rearing.

Several mothers from former West Germany highlighted that they had the impression that their parents wanted to push traditional gender roles. The situation differs in former East Germany. Here, the parents mention that they do not often rely on their children's grandparents, not financially or for other kinds of support. Personal beliefs and values, according to the authors, are one of the main reasons for these differences. The younger generation in former East Germany adopted their parents' opinion that "the two-income model with children and flexibly managing family and professional life is still natural, coping with adverse circumstances is passed on from generation to generation" (Klärner & Keim, 2011, p. 530).

Including the non-family related network as well, Wagner (2012) examines the effects of comprehensive social networks of mothers in Germany. She defines the

social network as family, friends, and spouses. She finds that full-time working mothers benefit to a much higher degree from a strong social network than part-time working mothers. In both cases, such a network is more important if the supply of public childcare is low. Wagner identified that West-German mothers benefit more often from social support compared to migrant mothers from Turkey, Italy, Spain, Greece, and former Yugoslavia. The informal network seems to be irrelevant for the employment rates for East German mothers. Though emphasizing that the following countries do not have an extensive system of social protection for families and are not characterized by the German *male breadwinner* model, Wagner (2012, p.17) observes that mothers in Germany with roots in Italy, Spain, Turkey, Greece, or the former Yugoslavia see the "family as a provider of care and ultimate responsibility-taker for its members' welfare, strengthening women's roles as caregivers." Here, women see it as their cultural obligation to stay at home.

The local labor market influences maternal employment in so far as a certain labor market structure may increase the incentives for mothers to apply for employment or discourage them to do so. Van Ham and Büchel (2006) address the issue by investigating influential factors on the macro level for female LFP, highlighting major differences between male and female employment behavior. They distinguish between two phases during the pre-employment time for women: "the willingness to have a paid job and, for those willing to work, actually having a job" (van Ham & Büchel, 2006, p. 354). By means of this approach, it is possible to identify the extent to which poor labor market structures discourage women from being in the labor force. In the course of the analysis, three distinct groups could be identified: unemployed women not seeking employment, unemployed women seeking work, and employed women. Poor labor market conditions, especially those marked by a low regional female unemployment rate, seem to be dominated by women less likely to engage in a job search. Contrary to the expectations of the authors, no discouraging effects in connection to a long traveling time or poor access to public childcare facilities could be identified.

The higher the regional female unemployment rate, the longer the travelling time to the nearest employment opportunities, and – for mothers – the poorer the regional provision of childcare, the lower the probability of finding a suitable job. In conclusion, the local labor market plays a role in both steps of employment, however the regional barriers of being employed influence mainly the second part of finding a suitable employment: those willing to engage in paid employment actually finding a job (van Ham & Büchel, 2006). Nieuwnehuis, Need, and van der Kolk (2012) examine, in a multi-nation study, that both, mothers and women without children, were more likely to be employed in societies with a large service sector and a low unemployment rate, showing that not solely regional/local, but national labor market structures are of interest here.

3.6 Interdependencies between determinants

Addressed above, there are different actors shaping and influencing maternal labor supply. It has been demonstrated that the predominant actor is the state, while companies often act as complementary, orienting themselves long the framework of the welfare state. Taking the findings of this chapter, other determinants were found to have an influence as well, making it worthwhile to observe the interaction between some of these distinct influences. Generally, two different methods are used to analyze the interaction. Firstly, multi-nation comparisons allow to determine the importance of distinct factors in various countries. Secondly, longitudinal studies permit the observation of shifts occurring over time, increasing or decreasing the importance of certain factors to be considered. The interdependencies of various determinants can also be observed more clearly, such as the introduction of the childcare subsidy and the simultaneously introduced right for childcare facilities of children older than one year are both policies of the welfare state (see section 2.3.1. "Reasoning of public childcare and childcare options" and 3.4.1. "Monetary leave policies"). The policies had different goals, but affected both parents with younger children. The childcare subsidy increased the freedom of choice to care for one's children at home or outsource said childcare. The legal right for public childcare promoted explicitly maternal labor supply. The differences in the goals lead to differences in the acceptance and usage of the policies for different target groups. The policies did not support each other, but acted in competition with each other.

Focusing on inter-European comparisons, Hipp and Leuze (2015) analyzed which factors influence an egalitarian distribution of paid work between parents. The distribution of paid work between partners is smaller if the income is taxed individually, the childcare facilities are fully developed and the gender wage gap is rather small. These factors support each other and lead to an egalitarian understanding of gender. These results are supported by the fact that generous public childcare and cultural support for gender equality are associated with smaller gaps in the preferred working hours between mothers and childless women. In contrast, well-paid parental leave policies lead to a larger gap in preferred working hours between both female groups. It has also been demonstrated that a low prevalence of non-standard work and high levels of work-time flexibility reduce the differences in preferred employment hours between mothers and non-mothers. Individual characteristics such as education, gender ideology, and the partners' socioeconomic status greatly impact women's preferred employment hours (Pollmann-Schult, 2015). Work-family conflicts have higher values in a European national comparison, if there is a certain degree of uncertainty. This relationship can be observed on the national level (for instance liberal vs social-democratic ones) and on the company level (Ollo-López & Goñi-Legaz, 2015).

The following authors compare the adoption of childcare support and flexible working arrangements by a company in dependence on the country in 19 European countries (Den Dulk, Groeneveld, Ollier-Malaterre, & Valcour, 2013), defining

state support for the reconciliation of family and work, such as statutory parental leave, public childcare, and offered flexibility of working time. Their results show that state support for the reconciliation of family and work is positively associated with the provision of childcare support as well as the possibility of using flexible working arrangements. Cultural centrality of work is associated negatively with both of them. With regard to the kind of companies, the public sector and larger companies are more sensitive to state support and cultural centrality than private sector, small, and medium sized companies. A large share of female employees is less sensitive to state support. These findings illustrate that organizational policies are influenced by the national contexts in which they are embedded.

Taking a slightly different perspective, Den Dulk, Peters, and Poutsma (2012) examine whether variations in the adoption of family-friendly HRM are dependent on the welfare state or the company in question. Their results reveal that organizational conditions and characteristics at the company level outrank the welfare state for consideration. The results, however, also show that when the "development of family-friendly workplace policies is mainly left to the market, as in the liberal context, employers do not fully make up for the absence of public provisions" (Den Dulk et al., 2012, p. 2786). The authors conclude that the welfare state creates a normative climate that gives rise to new social expectations and 'a sense of entitlement' regarding work-family support.

Abendroth et al. (2015) observe that the relationship between the welfare state, family, and employing businesses is nearly always complementary in this context, except for public childcare and supportive HRM. Public childcare is only beneficial for increasing working hours of mothers when supportive HRM are available and vice versa. Especially constraining opening times of public childcare facilities require some flexibility.

3.7 Concluding remarks

There is a wide range of factors influencing maternal labor supply. While the focus was on ESCC, it is nevertheless clear in presenting a substantial amount of literature focused on state and national intervention that scholarly interest focuses on the welfare state in this context. Generally, the influence of the employer and the working environment are researched less frequently.

Individual factors mostly influence maternal labor supply in one distinct direction. For instance, a higher income before giving birth is mostly associated with a shorter leave and earlier return-to-the-job. The literature review revealed that mothers do react to changing environments and conditions. For instance, it has been demonstrated that mothers react if parental leave policies are altered. If parental leave times have been extended mothers tend to stay at home for longer, while a shortened funded parental leave also often begets an earlier return-to-job. Maternal labor supply, thusly, can be regarded to a certain degree as dynamic (see also chapter 2). The general tendencies are summarized in the following table.

Table 3-1: Overview on determinants of maternal labor supply

Category	Influencing factor	Levels/Reference group	Expected influence	Main sources
Individual and household determinants	Partners income	High Low	Negative Positive	Ziefle and Gang (2014)
	Marital status	Married Single/Divorced/ Widowed	Negative Positive	Hancigolu and Hartmann (2014), Heimmer, Knittel & Steidle (2009)
	Age of children	Pre-school age School-age	Negative Positive	Sommerfeld (2009)
	Amount of children	One child More than one child	Positive Negative	
Employment modes	Occupation		Some distinct patterns	Stuth, Hennig and Allemndinger (2009)
	Qualification	Vocational education Academic education	Negative Positive	Gangle and Ziefle (2014)
	Career trajectories		Positive	Fitzenberger et al (2015)
Employer-related factors	ESCC	Self-employment	No common trend	
	Flexible working time		Positive	Schreyer (2015)
	Job sharing		Positive	Eberhard (2015)
	Working environment		Distinct patterns	
Influence of the welfare state	Monetary benefits	Paid over longer time Paid over shorter time	Negative Positive	Felfe & Lalive (2010), Kluve and Schmitz (2014)
	Taxation law		Negative	BMFSFJ (2015)
	Provision of public childcare facilities	Costs	Negative	Schober and Spieß (2014), Wrohlich (2011)
		Quantity of facilities	Positive	
	Social insurance related benefits		Negative	BMFSFJ (2014)

Category	Influencing factor	Levels/Reference group	Expected influence	Main sources
Further determinants	Additional childcare source		Positive	Wagner (2012)
	Unemployment rate	Low	Positive	Van Ham and Büchel (2006)
		High	Negative	
	Economic structure	Great share of service sector jobs	Positive	Nieuwnehuis & al (2012)
	Overtime		Positive	Struffolino et al (2015)
	Within Germany	Former East Germany	Positive	Jirjahn & Struewing (2015)
		Former West Germany	Negative	

The table reveals general trends in reaction to maternal labor supply determinants. This chapter revealed that the length of the work interruption after childbirth is primarily determined by the parental leave benefits. Individual determinants as well as the working environment rather influence the working volume.

Concerning the data and methodology of the above-utilized studies, focusing on the ESCC, several elements need mention. Approximately half of the studies used personnel data provided by companies, whereas the other half depended on publicly provided datasets (e.g. Swiss Human-Relations-Barometer or General Social Survey of the US). The effect of ESCC on work behavior in terms of working volume has never been analyzed for Germany with a public data set, only with personnel data (Commerzbank, 2009; Then et al., 2014). The datasets provided by businesses do not differentiate between men and women, or between mothers and non-mothers. Furthermore, the small test group does not allow for statistical tests, which implies that no control variables can be included. Causality tests cannot be conducted with this sample size, just descriptive statistics. This constraint limits the empirical power of the studies substantially. For instance, Münscher and Stahlschmidt's (2014) sample consists of only 114 users of a German on-site childcare center, which is too small for significance tests. The center opened in 2008 and the data includes the years 2006 to 2012. In Germany, the parents' money reform was introduced in 2007. The authors did not include this reform in their analysis, but concluded that the on-site childcare center had a positive impact on the (reduced) stay-at-home time of the employees. It might, however, have had an effect on the parents' decision, even if the authors did not include it in their estimation. The operationalization of ESCC is mainly dependent on the data set. While studies with personnel data focus on on-site childcare, studies with public datasets mostly analyze the effect of an aggregation of different kinds of ESCC.

The studies do not reveal a common trend, but instead identify patterns. Those using personnel data and descriptive statistics, and analyzing on-site childcare, find a positive effect on absenteeism, employee turnover, and the intention to leave a work place (Anderson & Geldenhuys (2011), Gullekson, Griffith, Vancouver, Kovner & Cohen (2014)). Considering the limitations of personnel data, these results should be analyzed carefully. Until now, the study by Gullekson, Griffith, Vancouver, Kovner and Cohen (2014) is the only study which differentiates between different kinds of ESCC. According to them, there is no difference for parents whether the employer provides vouchers or on-site childcare facilities. The parents value both kinds to the same degree.

The implications from the literature review will now be applied to the specific study at hand. This study, in line with previous research, aggregates the different kinds of ESCC. Based on the description of different kinds of ESCC in section 2.3.3.2. "Outlook on employer-supported childcare", it seems to be necessary to differentiate between regular and emergency care. Since the latter one just focuses on punctual care, however, it is no support in the everyday care. This study also explicitly aims at analyzing the impact of ESCC on work output, implying that the effect shall be quantified in terms of working hours or amount of working mothers. Finally, most studies follow a demand-oriented argumentation, much as the following will pursue. However, no previous study has distinguished between different kinds of employees effects might vary between higher and lower skilled employees. This addition may provide important input and speak to implications relevant for employers since they are certainly concerned with how to increase work output.

4. The Theoretical Construct of ESCC

The goal of this chapter is the design of a suitable theoretical framework. The literature review on ESCC identified three main groups regarding the theoretical contextualization of ESCC in dependence on the outcome variables. Firstly, some studies (for instance Casper & Buffardi (2004), Ratnasingram, Spitzmueller, King, Rubino, Luksyte, Matthew & Fisher (2012)) analyze the effect of ESCC on intentions to pursue or quit a job by means of the organizational support theory (Eisenberger, Fasolo, & Davis-Lamastro, 1990). The organizational support theory is rooted in the social exchange theory by Blau (1964). Secondly, there are studies which refer explicitly to the social exchange theory. Feierabend and Staffelbach (2015) as well as Gullekson, Griffith, Vancouver, Kovner, and Cohen (2014) use the theory by Blau to investigate the effect of ESCC on organizational commitment. Both groups of researchers analyze the impact of ESCC on non-material returns for the employer. This means, that there is no direct economic benefit for the employer, but rather a cultivation of a relationship between employer and employee. In the social exchange theory, the return of the employee to the job is defined as being non-material, meaning that it is mainly reflected in the commitment of employees towards their employer (Cropanzano & Mitchell, 2005). Work output, then, is not measured directly in terms of productivity or working time, but rather indirectly through measuring loyalty. The third group investigates the effect of ESCC on employees' perceptions of work-life balance. Their work applies the work-life boundaries theory by Greenhaus et al (1987). This group can be distinguished from the two other groups since their studies focus explicitly on the benefits for the employee, but do not explicitly, but rather implicitly, address the employers' benefit of ESCC. The here presented approach differs to the three approaches. The relevance of this study derives from the divergence between the actual and preferred employment rates of mothers and the relation to restricted childcare prospects. The goal of the thesis aims to reveal whether ESCC can fill this gap or not.

The starting point is the Homo Economicus. External incentives, may be argued, might increase or decrease work motivation. In order to appropriately address this issue in the context of ESCC and maternal labor supply, Akerlof's gift-exchange theory is quite helpful. It is an efficiency wage model, stating that higher wages may increase the efficiency of workers, making it worthwhile for the employers to offer wages exceeding a market-clearing level. This theory implies that people pursue only their own self-interest and do not care about "social" goals ("Homo Economicus"). Akerlof extends this neoclassical approach by adding a sociological dimension. He states that "in every social context, people have a notion of who they are, which is associated with beliefs about how they and others are supposed to behave" (Akerlof & Kranton, 2010, p. 4). This notion influences working behavior as well. It is also known as the "corporate identity." Finally, Herzbergs motivation

theory permits a systematical derivation of which external factors might be influential in the relationship between ESCC and maternal labor supply.

4.1 Derivations from the neoclassical standard model

In economics, one dominant concept of a human being is called the Homo Economicus. This model states that humans act consistently rationally and are narrowly self-interested agents who generally pursue their subjectively defined goals in an optimal way (Kirchgässner, 2008). Thereby, the human being tries to maximize utility as a consumer and profit as a producer. This model can be applied in many areas of economics, for instance in private households as part of consumption theory, in production, or in theories concerning the market equilibrium. It contradicts concepts of behavioral economics, which focus on actual economic behavior, including, for instance, cognitive bias. The goal of this section is to illustrate that the assumption of a straightforward positive relationship between ESCC and maternal working behavior is not guaranteed as may be assumed in standard economic theory and based on the previous information, explaining, criticizing, and extending the theory of Homo Economicus. As a result, prosocial preferences can be assumed to play an indispensable role.

4.1.1 Assumptions and limitations of the Homo Economicus

The Homo Economicus became famous in the late 19th century as defined by John Stuart Mill as "a being who inevitably does that by which he may obtain the greatest amount of necessaries, conveniences, and luxuries, with the smallest quantity of labour and physical self-denial with which they can be obtained" (Mill, 1874, p. 48). During this time, the model was still known as the economic man. In the late 19th century, mathematical models were built on these assumptions. The following paragraphs discuss the prevailing assumptions of the Homo Economicus as part of twenty-first century economics. Thereby, the interaction with sociological and psychological perspectives will be highlighted, responding to substantial amounts of criticism the Homo Economicus model receives from economics.

In economics, the human behavior is marked by the interaction of four units of action: preferences, restrictions, scarcity, and alternatives. Firstly, preferences reflect the intention of individuals. They show "the individual's ideas of value as they have been developed during the process of his socialization" (Kirchgässner, 2008, p. 12). Preferences are characterized as being stable, exogenous, and independent of actual possibilities of action. In the sense of preferences, human behavior can be regarded as a rational choice considering all alternatives available. Human beings assess the advantages and disadvantages, the pros and cons, costs and benefits, of alternatives and then decides what meets their needs or preferences. Preferences can be goal-, risk-, or time-oriented. Altogether, Sen and Williams (1982, p. 15) define preferences in economic terms as „utility maximization under constraints with uncertainty." Secondly, "[r]estrictions limit the individual's leeway of action" (Kirchgässner, 2008,

p. 12). Restrictions develop from external incentives and limitation of human action. Exemplary restrictions are income, prices, or opportunity costs. Moreover, restrictions can also be time-, social-, or legal-related (Frey, 1990). Thirdly, scarcity, Alchian and William argue "given the limitations of nature and the unlimited desires of man, (...)[is] inevitable and pervasive (Alchian & William, 1964, p. 12)." This implies that individuals have to choose between alternatives, as several needs are understood as impossible to satisfy simultaneously. Fourthly, the assessment of alternatives for human action results in the behavior of individuals. These four concepts make up the corner stones of human action and are used to explain the Homo Economicus framework, providing a more explicit tool to analyze human action in economics. The framework of the four units of action functions with certain key assumptions which characterize the Homo Economicus. These assumptions are essential for the establishment of the Homo Economicus (Kirchgässner, 2008) and address rationality, the axiom of self-interest, methodological individualism, the consideration of "average" individual behavior, and the distinction between preferences and restrictions.

Firstly, it is assumed that the Homo Economicus is acting purely rationally. Rational behavior is independent of the place or situation in which the individual is acting. Thereby, norms and rules of behavior are relevant since they can influence the preferences of individuals when weighing alternative options. This implies that individuals adapt, meaning that they can adjust their behavior to environmental conditions. Furthermore, Kirchgässner argues that individuals make decisions systematically: adjusting to certain conditions, for instance time pressure. Then, the individual is disposed to pay costs for additional information if he expects a relevant re-orientation in the assessment of possible alternatives. The individual reacts to this change in a systematic fashion, defined by "neither [...] chance nor randomly, but also not in a strongly traditional manner by keeping strictly to given rules independent of the concrete situation" (Kirchgässner, 2008, p. 16). As a consequence of systematic rational behavior, it can be expected that individuals reconsider their alternatives when receiving new information, thus behavior can be, in some way, predicted. In this context, Führ (2003) highlights as one condition of acting as a Homo Economicus that the Homo Economicus must know all alternatives of action and is able to react in an optimal way to newly acquired cost-free information. On this basis, he makes decisions.

The second assumption addresses preferences, namely self-interest. In short, it implies that "the individual acts exclusively according to his own interests" (Kirchgässner, 2008, p.15). Attitudes like benevolence, altruism, envy, or malevolence are excluded in the decision-making process. While the individual is aware of the fact that he is living as part of society, he is indifferent to the behavior of other human beings. Their interests are just considered if they affect the individuals' range of action. Rawls (1971, p. 144) calls this behavior "mutually disinterested rationality".

The third and fourth assumption address the individual behavior in the context of the collective. Frey (1990) argues that methodological individualism says that the behavior of the individual leads to the behavior of the collective. Contrary to the methodological holism, it is not assumed that collectives are self-reliant. Rather,

just individuals are able to act in a self-interest oriented way. The aggregation of individual decisions reflects collective behavior like for instance in households, companies, or trade unions. Thereby, it should be noted as the fourth assumption that it is not the purpose of observing singularized individuals, but group-specific behavior, traced through the aggregation of individual actions. The average behavior is preferred to acquire central implications for exemplary households or companies (Volkmann, 2003). Generally, the collective is able to exercise influence on individuals through action preferences, restrictions, and creating a framework for decision-making.

Finally, it is assumed that there is a strict division between preferences and restrictions. It is assumed that preferences are constant and infinite. Restrictions can change and influence the behavior of individuals. The changing nature of restrictions can show how individuals react to changing incentives (Benz & Frey, 2002).

To sum up, the framework for Homo Economicus regards human beings as utility maximizers, who are self-controlled, rational, and self-interested, as human beings who have no prosocial preferences. This rationality implies that cognitive limitations result in systematic suboptimal decisions being disregarded and self-control implies that emotions are not considered in decision processes. However, it is questionable if all these prepositions can be found in real human behavior. Or, as Thaler (1996, p. 227) puts it, "Humans are dumber, nicer, and weaker than the Homo Economicus."

Already in 1937, Coase argued that acquiring information to choose between alternatives is costly. These costs are defined as transaction costs, which do not arise during the production of goods, but which originate at the handover and surrender of goods (Coase, 1937). Führ (2003) argues that these costs include both research costs and manufacturing costs when working on the information process. Moreover, there are decision making costs and supervision costs. Consequentially, the human being decides in form of a cost-benefit analysis. Hence, transaction costs lead to a non-optimal assessment of the alternatives when making decisions. Kirchgässner (2008) points out that individuals cannot consider all alternatives comprehensively due to time pressure. Therefore, it cannot be assumed that individuals are able decide systematically under the assumption of complete information. Kirchgässner (2008) highlights that it should be regarded as restricted rationality contrary to full rationality, since decisions are always grounded by a certain framework. The bounded rationality should not be mistaken for irrational or volatile decision maing, but rather seen as a weakened rationality.

The assumption of rationality thus is, especially from the psychological perspective, questioned. For example, prospect theory highlights situations in which individuals do not act rationally (Kahneman & Tversky, 1979, 1992). Here, individuals are not able to decide on the basis of rationality since there are boundaries to their logical evaluation capacity. Individuals assess alternatives based on the current, and subjective, situation and chooses accordingly. In addition, how one structures winning and losing factor into making decisions.

Both examples show that the prediction of standard economic theory, that the promise of higher payments connected to measurable performances always leads to increased performance, does not hold. Prosocial preferences are assumed to play a determining role in the context of this study.

4.1.2 Pertinence of social preferences

One concept which is mostly mentioned when criticizing the Homo Economicus refers to social preferences. Social preferences are defined as the behavior of individuals, not guided by self-interest, but fair and reciprocal preferences. Preferences must be regarded as dependent on the individual motivation, since individuals do not always act in accordance with the balance between self-interest and rationality.

Based on a widespread review on prosocial behavior, Osterloh, Weibel and Wieman (2014) highlight two reasons for prosocial behavior in economic situations. Firstly, there are two further "intrinsic motivation propensities", next to the standard economic assumption of egoism (Osterloh et al., 2014, p. 75). Reciprocity is conditional on the prosocial behavior of other people. In other words, an individual is behaving reciprocal if he rewards friendly and cooperative behavior of other individuals and in turn punishes unfriendly behavior. The punishment might even inhabit material costs for the individual. The reason to reciprocate especially kind actions lies in moral obligation. This is different from altruism, which is not conditional. Altruism shows the tendency of an individual to pay a personal cost to provide benefits to others (Fowler & Kam, 2007). Hence, an altruistic-oriented individual is acting unselfish, while the reciprocal individual acts based on a give and take model. A tight relationship exists between reciprocity and fairness: The basis of reciprocal behavior is the understanding of fairness, which includes the fair distribution of resources.

Prosocial behavior also demonstrates both intrinsic and extrinsic motivational types. Extrinsic motivation is guided by external incentives for the individual, which can appear in form of awards or penalties. The incentives for instance, may be in form of money, or mediation. However, solely extrinsic motivation cannot explain prosocial behavior. Intrinsic motivation is equally valued and appears to be self-sustained. It is regarded as the direct satisfaction of needs (Osterloh & Frey, 2000), "The ideal incentive system is in the work-content itself, which must be satisfactory and fulfilling for the employees." The existence of an intrinsic motivation shows employees' interest in their work. Thereby, it can be differentiated between two kinds of intrinsic motivation (Andreoni & Miller, 2002). One, there are hedonistic preferences implying self-service. Two, intrinsic motivation can be directed at others, which is part of someone's preferences of action, leaving the actor feeling positive about themselves. Lindenberg (2001) argues that the latter kind of motivation derives from internalized social norms. Both kinds of intrinsic motivation can be regarded as plastic and can be influenced systematically by institutions. For instance, curiosity or interest can trigger intrinsic motivation.

Osterloh et al (2014) connect this to the psychological oriented self-determination theory (Deci, 1980; Deci & Ryan, 1985), which, according to them, is the main reason for the renunciation to the Homo Economicus. Both behavioral economics and self-determination theory assume that there are different kinds of motivation. While self-determination theory calls this intrinsic an autonomous motivation, Osterloh et al (2014) highlight that the differentiation between different types of extrinsic motivation is not essential for economics; it is evident that economists' understanding of intrinsic motivation "includes what SDT views as identified – or integrated extrinsic motivation *and* as pure motivation" (Osterloh et al., 2014, p. 75). Moreover, both disciplines agree on the distinction between prosocial behavior as the wish to assist other people while individuals want to fulfill a task. Contrary to self-determination theory, behavioral economics focuses on the effects of these preferences, while self-determination theory tries to detangle the differences between both.

Critics of Homo Economicus are especially relevant here, since the model considers individuals as solely motivated extrinsically. The individual reacts in a rational self-interested way. Hence, he changes his behavior systematically through incentives from the outside, but he neglects the motivation coming from the inside.

4.1.3 Interaction of extrinsic and intrinsic motivation

The following definition by Locke and Latham (2004) is used to operationalize motivation in this context and identifies the influence of people's acquisition of skills and the extent to which they use their ability. According to the authors, "the concept of motivation refers to internal factors that imply action and to external factors that can act as inducements to action. The three aspects of action that motivation can affect are direction (choice), intensity (effort), and duration (persistence). Motivation can affect both the acquisition of people's skills and abilities; and also the extent to which they utilize their skills and abilities" (Locke & Latham, 2004, p. 388).

In behavioral economics, extrinsic and intrinsic motivations demonstrate a more than just additive relationship. Frey (1997) argues that both types of motivation act in a predictable manner. This section will address the different kinds of relationships between the two kinds and assess which forces influence them. Here they distinguish between the crowding out effect, which inhabits that "intrinsic motivation for an activity can be repressed by extrinsic rewards (or punishments) and by certain forms of control" (Osterloh et al., 2014, p. 76). Thereby, it can be differentiated between crowding out through pay-for-performance and crowding out through formal control. Crowding in includes that certain institutional set ups may raise the intrinsic motivation for a task. This might happen through participation, fairness, market-driven wages, or normatively affected decision-making contexts.

Starting with the crowding out effect through pay-for-performance, Osterloh et al (2014) highlight that there are three different underlying mechanisms restraining the influence of incentives on the intrinsic motivation. This effect is also known as the hidden cost of reward (Greene & Lepper, 1978). The psychological theory of

cognitive evaluation (Deci, 1980; Frey, 1997) forms the starting point for self-determination theory and examines negative impacts of rewards on motivation through unobservable cognitive processes. Thereby, the concept of the locus of causality introduced by De Charms (1968) analyzes when intrinsic motivation descends to extrinsic motivation and when external incentives come into play. The perceived locus of causality focuses on individuals' attitudes towards certain behaviors by considering the internal and external locus of causality simultaneously. The internal locus of causality refers to one's perception towards tasks regarding endorsements. The external locus of control refers one's actions in response to external circumstances. Applying this knowledge to the situation at hand, the external locus of control refers to the extrinsic motivation while the internal locus of control can be ascribed to intrinsic motivation (Deci, Connell, & Ryan, 1989). External conditions can provide information and give individuals the feeling of self-determination, which has the goal to strengthen internal loci of causality and consequentially the intrinsic motivation. However, the perception of self-determination can be diminished if it is perceived as controlling (Deci, Koestner, & Ryan, 1999). The perceived feeling of loss of self-determination can shift the intrinsic motivation to predominantly existing as an extrinsic motivation since individuals perceive the external locus of causality as counteracting intrinsic motivation. This observation implies that incentives, which are either characterized by punishment orientation or tight observation, replace intrinsic motivations if perceived as too controlling and limiting to voluntary engagement.

The second theory explaining supplanting effects is called goal-framing theory and stems from Lindenberg (2001, 2006). Here, the central argument is that all human behavior is goal-oriented, implying that several goals influence the orientation of motivation. There are always some goals competing with each other. There are three prevailing frameworks enabling distinct kinds of motivations. The hedonic frame focuses on the intrinsic motivation, the normative frame establishes prosocial motivation, and the gain frame highlights extrinsic motivation. For example, rewards marked by a tangible and contingent nature might strengthen the gain frame but push the hedonic and/or normative frame to the background. A task which seemed to be interesting and enjoyable in the first place seems to be less appropriate if a strong gain frame is introduced. In this context, incentives need to strengthen an individual's moral obligation and simultaneously de-emphasize the competing gain and hedonic frame to be effective.

The third mechanism of crowding out refers to the information aspect deriving from extrinsic motivations (Benabou & Tirole, 2003). External incentives might reveal that the principal either does not trust him or wants to transfer a displeasing task to the agent. Hence, contingent rewards might reveal that some tasks are less interesting, which consequentially does not strengthen intrinsic motivation. This phenomenon is known as the signaling effect of prices. This concept has been developed based on volunteering behavior, which is reduced due to the introduction of external incentives. The signaling effect of prices might hence be revealed if individuals perceived a task as highly symbolic for them, but this perception

disappeared once a certain external price is determined (for instance in case of blood donation) (Bolle & Otto, 2010). Without the external compensation, individuals acquire the feeling of a warm glow when they regard themselves as acting prosocial, which confirms their self-understanding of being intrinsically good. As soon as fines or rewards are linked to these issues, "people face the possibility that their contributions are rather motivated by extrinsic incentives than by high moral values as originally assumed" (Osterloh et al., 2014, p. 77). Consequentially, the individuals do not pursue these tasks anymore with the same motivation.

Independent of the three presented methods, Frey and Jegen (2001) highlight three conditions leading to crowding out effects in terms of pay-for-performance. Firstly, the task was originally intrinsically motivated. Secondly, the incentive is interpreted as a monitoring device. Thirdly, extrinsic motivation is generated by reward, which does not counterbalance the loss of intrinsic motivation.

Formal control is defined as the "purposeful influence of the regulation on an individual's behavior through hierarchical authority, which leads to the attainments of institutional goals" (Osterloh et al, 2014, p. 79). Thereby, formal control tries to influence extrinsic motivation in form of describing common goals. Achievements are supervised, depending on compliance: individuals can be rewarded or sanctioned. Weibl (2010) mentions two conditions under which formal control can negatively affect intrinsic motivation: employees regard it as external influence, which is often regarded as "at odds" with the need of autonomy, and formal contracts can influence social relations between employer and employee. This signals suspicion and intensifies the hierarchical distance between the person, who is controlling, and the person, who is controlled. The negative effects of formal control can be diminished if the controlled person perceives trust by the supervisor.

While pay-for-performance and formal control can trigger crowding-out effects, there are several types of situations, which might promote crowding in. The first two situations discussed here are tightly related and exemplify participation and organizational fairness. Participation is defined as codetermination at work (Osterloh & Frey, 2000). A higher degree of codetermination at work increases the intrinsic work effort of individuals. Self-employed individuals have a far higher intrinsic motivation (Osterloh et al., 2014). Concerning organizational fairness, Tyler and Blader (2000) argue that intrinsic motivation and the prosocial behavior of employees can be positively affected if the working procedures are perceived as fair, which occurs when active participation is supported. This implies that employees expect appreciative treatment, neutrality, codetermination, impartiality, and respect. Thereby, it can be differentiated between two kinds of attitudes (Maier, Streicher, Jonas, & Frey, 2007): individuals with an inherent personal need for distributive justice related negatively to intrinsic motivation, individuals having an inherent personal need for procedural justice see intrinsic motivation as positive. Human beings with a strong intrinsic motivation more often attempt to achieve competence and autonomy for themselves and others. On the contrary, human beings susceptible to extrinsic motivation as a consequence experience less of an intrinsic motivation.

According to Lindenberg (2006), individuals are more likely to fulfill a task or put effort into something if the decision-making frame reveals that prosocial behavior is expected, which is called normatively shaped decision-making. Ariely, Bracha, and Meier (2009) call this attitude "image motivation" and place it next to intrinsic and extrinsic motivations. This motivation refers to the individuals to acting pro-socially because they want to be considered as good by others and themselves. This observation is in line with the observations by Benabou and Tirole (2003) presented earlier.

The fourth factor of the crowding-in mechanism refers to market-driven wages. Akerlof (1982, 1984) argues that wages can reinforce the intrinsic motivation of employees if they perceive it as a signal of the company's goodwill and as an appreciation of employee performance. This is known as the gift exchange between employer and employees, which will be discussed in detail below. In reference to the pay-for-performance mechanisms of the crowding-out effects there is a strengthened focus on high fixed wages. High fixed wages are related to self-esteem, trust, and intrinsic motivation (Benabou & Tirole, 2003), as it has been proven that fixed pay is interpreted as a sign of trust. Consequentially, employees who are reacting to social norms are more likely to increase their efforts under high fixed pay, compared to variable pay schemes.

4.1.4 Expanding intrinsic motivation through lower-order needs fulfillment

The previous section has revealed that incentives and payments by the employer might increase or decrease the intrinsic work motivation of employees. This section addresses additional factors which could influence the effects of incentives on the work motivation. Therefore the following utilizes content theories assessing individuals' needs and examining the determinants within a person that stimulate or stop certain behaviors (Reid, 2002), assuming that there is a complex interaction between both external and internal motivational influences. The circumstances determine in how far individuals react to different types of external and internal stimuli (Bassett-Jones & Lloyd, 2005).

In 1943, Maslow published a needs-based framework for human motivation, leading to the model entitled "hierarchy of needs" (Maslow, 1954). The basis of Maslow's motivation theory is that human beings are motivated by unsatisfied needs and a hierarchy and order within which they need to be addressed. The basis of Maslow's motivation theory is that human beings are motivated by unsatisfied needs, and that certain lower factors need to be satisfied before higher needs can be satisfied. There are general types of needs (physiological, survival, safety, love, and esteem) that must be satisfied before a person can act unselfishly. He called these needs "deficiency needs". As long as individuals are motivated to satisfy these cravings, individuals are able to move towards growth, or self-actualization. Satisfying these needs is healthy and prevents gratification, which makes us sick. On the basis of this theory, Herzberg's hygiene versus motivators framework (Herzberg et al., 1959) was introduced, which analyzes the notion of job enrichment in relation to organizational behavior and applied psychology. Contrary to Maslow, who based

his idea of the concept of human needs and their satisfaction, Herzberg made use of motivators which include achievement, recognition, and opportunity for growth.

In essence, this "dual factor" theory proposes that job satisfaction and job dissatisfaction are different states that result from different forces. The two feelings cannot simply be treated as opposites of one another. The opposite of satisfaction is not dissatisfaction, but rather no satisfaction. Similarly, the opposite of dissatisfaction is no dissatisfaction. They argue that they are two distinct human needs portrayed. Firstly, there are psychological needs that can be fulfilled by money for example, to purchase food. Secondly, there is the psychological need to achieve and grow. This need is fulfilled by activities.

Job satisfaction was proposed to derive from "motivators" (i.e., characteristics related to the nature and content of the job itself, such as opportunities to achieve, recognition, interesting work, responsibility, and the possibility to grow and advance within the organization). By contrast, job dissatisfaction was thought to result from "hygiene" factors (i.e., characteristics related to the context of the job, such as policy and administration, supervision, interpersonal relations, working conditions, salary, status, and security). These factors are not part of the work itself, but rather external factors. They need to be fulfilled before an individual is able to develop work motivation.

Herzberg calls the motivators higher-order needs and the hygiene factors lower-order needs. The lower-order needs need to be fulfilled prior to higher-order needs. Thereby, the higher order needs contribute to intrinsic motivation through lower-order needs.

Figure 4-1: Hygiene and motivation factors of Herzberg et al (1957)
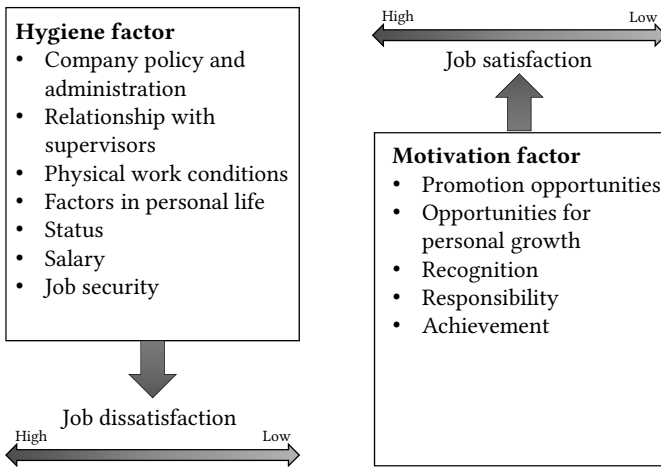
Source: Own design on basis of Herzberg et al (1957)

In case that the hygiene factors cannot be regarded as fulfilled, individuals are regarded as unsatisfied. If the hygiene factors are regarded as fulfilled by the employee, they are taken as self-evident and have no additional motivational meaning. Missing hygiene factors can just partly be counterbalanced by motivators. According to Herzberg et al (1957), employees are able to be simultaneously satisfied and dissatisfied with their employment situation.

In the context of this study, the hygiene factors are primarily interesting which will be discussed in more detail in section 4.3. The theory by Herzberg et al. is privileged here, since Maslow argues that all lower-order needs must be satisfied before one progresses to higher-order needs. On the contrary, Herzberg et al. do not see the factors as a closed cycle, meaning that there is variation in the assessment of individual importance for employees. In the context of this thesis, the hygiene factors are of primary interest since they are factors, which can be actively by employer, or at least addressed. Meanwhile, the motivation factors are coming from the inside of the employee, inhabiting that they are outside the sphere of being influenced. Accordingly, ESCC does not change their value.

4.1.5 Work motivation and maternal employment

The previous section has demonstrated that there are various reasons influencing intrinsic and extrinsic work motivations. Before structurally assessing the factors individually, it pays to clarify Frey's intrinsic motivation and Herzberg's hygiene factors and how they relate to maternal employment.

Herzberg has extended the traditional view on satisfaction and dissatisfaction as influencing factors for work motivation, which eventually influences work output.

Figure 4-2: Contrasting views on satisfaction and dissatisfaction

Traditional view

Dissatisfaction ⟵————————————————⟶ Satisfaction

Herzberg's view

Motivators

No satisfaction ⟵————————————————⟶ Satisfaction   *Intrinsic*

Hygiene factors

Dissatisfaction ⟵————————————————⟶ No dissatisfaction   *Extrinsic*
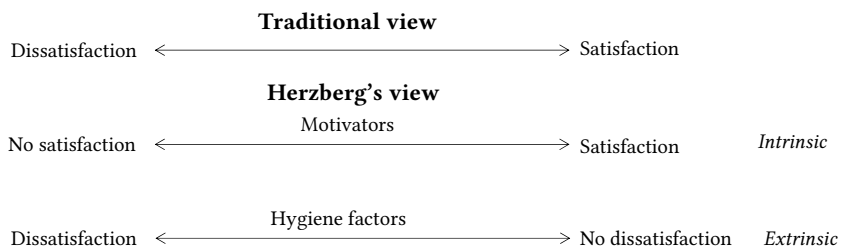
Source: Own design

The different views on satisfaction are quite relevant for HR managers, since they can adjust their policies in a way to elicit a stronger work motivation amongst workers. The idea that motivators contribute to intrinsic motivation through the fulfillment of the basic needs is consistent with the theory of self-determination by Deci and Ryan (1985), which is used to explain the crowding out effect of intrinsic

motivation as seen by Frey. The self-determination theory emphasizes psychological versus physiological needs, whereby psychological needs include competence, relatedness, or autonomy. Physiological needs include food and water. In Herzberg's theory, motivators would fall within the category of "social circumstances and task characteristics" that contribute to satisfying psychological needs. According to the self-determination theory, work conditions are important since they contribute to the fulfillment of higher-order needs.

Herzberg suggests that to improve job attitudes and work behavior, HR managers must recognize both sets of characteristics and cannot assume that an increase in satisfaction results in a decrease of dissatisfaction. Hence, it should not be assumed that introducing external incentives leads directly to an increased work output. HR managers need to recognize that there is mostly an heterogeneous internal labor market, which inhabits that individuals react in a different way to HR policies (Boxall, Purcell, & Wright, 2007). For instance, the reaction towards economic incentives might depend on the qualification, economic sector, or personal work experience of an employee (see section 4.3).

The heterogeneity of the employee includes non-work specific obligations. Based on the traditional economic labor supply model, the consideration of family as an economic unit influences the priorities between market versus non-market times substantially. Having a child influences the labor supply, since somebody needs to take care of the child. Child minding is time consuming or costly if outsourced. If a mother takes care of the child herself, this time is considered spent with a non-market activity. Every hour of work is at the expense of one hour of leisure, and for every hour of work, formal childcare has to be provided (Blau, Ferber, & Winkler, 2006). While these considerations are made mostly within the household context, Becker (1993, pp. 37–38) argues that a gendered division of labor emerges, because women "have a heavy biological commitment to the production and feeding of children" while men "have been less biologically committed to the care of children." Next to the biological assignment of mothers taking care of children, the societal norms and values might be, to a greater or lesser degree, focused on mothers as caretakers. Duncan, Edwards and Reynolds (2003) even argue that economic constraints and social policy are subordinated to cultural context or social norms when addressing personal choices. Based on the psychological perspective, childcare development might be negatively affected by maternal employment since mothers spend less time at home and cannot foster the children's cognitive development. In early childhood, breastfeeding may be important for the physical development of the child and the child's cognitive and social skills could depend crucially on the mother-child relationship, where caretakers cannot function as an appropriate substitute. The quality of non-maternal care is assumed to affect the mothers' decisions through altering the psychological costs and benefits of work versus unpaid family care, although economic concepts have not considered this explicitly (Lindberg, 1996; Roe, Whittington, Fein, & Teisl, 1999). These considerations influence the "mother's guilt" (Fogli & Veldkamp, 2011), implying that mothers feel guilty if they work instead of caring for their children, linked to societal understanding of

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working mothers. Feelings of guilt result from behavior not corresponding to one's own ideal of what a mother should do – taking care of children full-time (Akerlof & Kranton, 2000). The psychological perspective might be influenced by prevailing social norms. Thereby, it can also be that mothers are likely to consider higher-quality formal care as a more suitable substitute for their own care time (Ermisch, 2003).

Independent from economic, sociological, or psychological dimensions, HR managers are aware that their workforce might consist of employees in general, but include mothers specifically with heterogenic attitudes towards maternal labor supply. It can be assumed that mothers do not act in a purely self-interested way, but consider the well-being of their children when making employment decisions (Ermisch, 2003).

Based on the previous discussion starting with the description of the Homo Economicus and ending with specific issues employed mothers are facing, the following questions arise: Does the gift-exchange approach help to explain potential effects of ESCC on maternal employment? Can ESCC be regarded as an incentive to push the crowding-in effect? Which external factors might influence maternal employment and in which direction?

4.2 ESCC conceptualized as an efficiency wage

4.2.1 Origin of gift-exchange theory: Efficiency wage models and social exchange theory

As already mentioned, the gift-exchange theory by Akerlof explains human behavior extending an economic framework with sociological thoughts. The following provides an overview of the economic foundation of gift-exchange theory, introducing efficiency wage models. The underlying idea of efficiency wage hypothesis refers to a microeconomic foundation of earnings rigidity and involuntary unemployment. The explanation for earning rigidity or respectively the question, why involuntary unemployed people are not able to enforce a wage less than the going wage rate, does not explicitly access to systematic differences between the preferences for risk between the two labor market parties. However, it is based on the causal relation of a positive correlation between labor productivity and real wages earned. Hence, "if wage cuts harm productivity, then cutting wages may end up raising labor costs" (Yellen, 1984, p. 200).

Since employers have the possibility to increase their profit by paying efficiency wages, they have an interest in adapting their earnings offers in accordance with full employment on the labor market. Their main interest does not refer to the national economy, but the earnings, which minimize the labor costs per efficiency unit. If the earning is above the level of the market clearing, the employer does not need to be afraid of constraints regarding the labor supply. In fact, the equilibrium of the labor market is characterized by the existence of involuntary unemployment. As a consequence, the company is not willing to decrease the efficiency wage to the level of full employment, since this would reduce the productivity of their employees.

This reduction in productivity is not offset by the decreased wage costs (Sesselmeier & Blauermel, 1998). The following figure shall illustrate the relation between the efficiency wage and its consequences on the labor market.

Figure 4-3: Work input in dependence on the wage
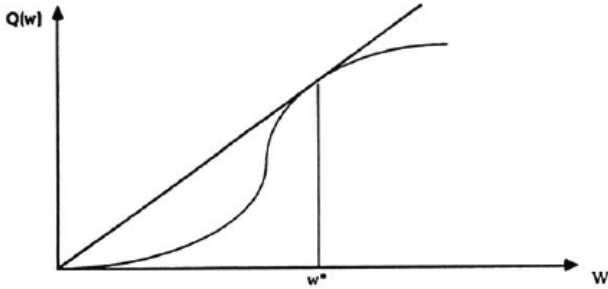
Source: Weiss (1990)

The figure shows the expected labor input of a randomly chosen employee on the vertical axis Q(w) as a function of the wage input w. The optimal (efficiency) wage w* sits where the vector from the origin is tangent to the curve. Simultaneously, this is the maximum point for Q(w)/w. This wage can be solely justified due to the main assumption of the efficiency wage theories, namely that incentive measures are introduced due to imperfect and asymmetric information. Weiss (1990, p. 20) states it as follows, "Recall that in a perfect information model with no incentive effects of wage w*=0." The information from this figure can be transferred to the figure with a labor supply and demand curve:

Figure 4-4: Labor supply and demand curve in connection with efficiency wage
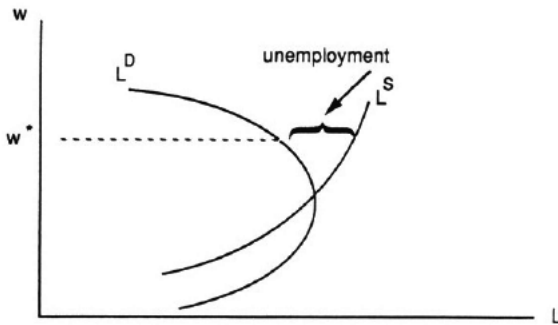
Source: Weiss (1990)

This figure includes the labor supply and demand curve in dependence on efficiency wage considerations. As a result, the labor demand curve leans backwards (L^D) while the labor supply curve (L^S) raises. According to the general argumentation, labor demand decreases with an increasing wage rate. Since employers organize labor according to the efficiency wage, in other words labor to the cheapest price in terms of efficiency units, this point w* determines the amount of labor demand. This amount of labor in demand does not change even if a greater labor demand could be realized at a lower wage level, since this lower wage level would not meet the expectations of the employer. The extent of unemployment depends thereby on the level of labor supply. Generally, no employer would pay a wage below w*, since it would increase labor costs, which in turn affect the competitiveness of the company. An equilibrium can only be established in w* or above, in case that the labor supply curve cuts the labor demand curve on the left hand side of w*. If the intersection between the two curves is at the right hand side of w*, unemployment exits. It can also happen that the labor supply curve cuts the labor demand curve twice. This situation is represented here:

Figure 4-5: *Equilibrium in case of several intersection points*
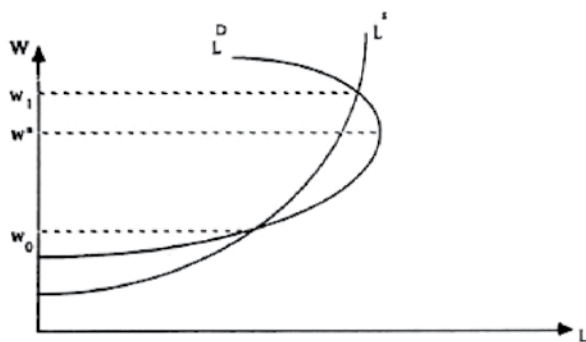
In case that labor demand and labor supply curves intersect at two points, just the upper intersection w_1 can be regarded as maintaining an equilibrium. W_0 is no equilibrium since there is an excess demand for labor between w_0 and w_1, which will be met by the employer with higher wage levels until w_1 is met. The efficiency wage hypothesis refers to the principal-agent problematic: It is not possible to identify and control the exact performance of the employee by the employer. Akerlof and Kranton (2010) mention three factors why specific monetary incentives often do not work in practice. Firstly, teams of workers, instead of individuals, often produce output together. As a consequence, the potential results which could serve as a basis for compensation are not directly or just weakly related to the performance of an individual worker. The compensation of work for the whole team might then

overcompensate certain employees and undercompensate other employees. Secondly, many employees do need to work on several tasks at the same time. This means rewarding just some of the tasks would lead to a concentration on these tasks and negligence of other tasks. Thirdly, it can happen that compensation is dependent on the relative performance of an employee, for instance in the case of the competition for a promotion. Since the employees are compensated for relative performance, these competitions decrease the necessity of information provided to the employer. Akerlof and Rachel highlight that another problem might arise due to competitions between employees: employees may see competition as an incentive to sabotage the work of other employees. In conclusion it may be argued that (Sesselmeier & Blauermel, 1998):

1. the labor supply side, in other terms the employee, is able to vary their performance without the labor demand side, or employer, being able to observe changes completely. There is asymmetric information with regard to the working intensity.
2. the employee, who is solely following the economic driven process of optimization, can be substituted by the employer, who controls the wage. By definition, this employer can determine the marginal productivity of labor with the efficiency wage, by being above the market clearing level. However, the general neoclassical assumption remains that the wage level corresponds to the value of the marginal product of labor.

The absorption of distortions in the economic demand does not derive from change in real wages, but is due to changes of the demand of labor, and due to the quantitative adjustment of labor potentials. The wage structure within companies remains intact and employers stick to their goals which are, next to maintaining the efficiency wage, the growth in labor productivity and a decrease of information costs.

There are four main approaches to explain efficiency wages, categorized in accordance with advantages seen by the employer: (1) the gift-exchange approach uses a sociological approach to explain that norms influence the working behavior (Akerlof, 1982, 1984); (2) the shirking model argues that if employees receive a higher wage, the cost of losing their employment status raises and this acts as an incentive for workers not to shirk and thereby reduce the risk of being fired (Shapiro & Stiglitz, 1984); (3) the labor turnover approach sees businesses offer wages in excess of market-clearing due to the high cost of replacing workers (search, recruitment, training costs) (Stiglitz, 1974); (4) the adverse selection perspective applies to firms faced with a larger pool of applicants due to higher wages which can increase their hiring standards and thereby lead to a more productive work force (Weiss, 1980). Contrary to other approaches of explaining behavior (for instance game theory), the mentioned ones are outstanding due to the consideration of norms and emotions. The following will focus on the gift-exchange model to explain changes in work behavior due to ESCC.

After having provided the economic foundation of the gift-exchange model, the following paragraph explains the distinct characteristics of social exchange.[11] The concept of social exchange is derived from Blau (1964) and used to explain social interactions that employees experience within their organizations. It can be a basis for the subsequent discussion (Brandes, Dharwadkar, & Wheatley, 2004) as it is marked by a personal relationship, including a mutual concern and empathy for the other (Brass, Butterfield, & Skaggs, 1998). There is no time limitation placed on the exchange leading to a natural exchange of interactions (Blau, 1964). And the participating parties do not disclose the value of the gift they provide for the other party. The explicit mention of value would indicate subsequent motives, such as self-interest. The receiver would perceive the values as an undermining of the exchange relationship. This situation is also known as the *taboo of calculation*. The non-disclosure of the gift exchange lowers concerns about the actual resources being exchanged (Mauss, 1967). The social context of the gift exchange is highly significant. A gift may have an emotional value to a receiver that is deemed equivalent to a more impressive gift that was exchanged to the other party. However, when there appears to be an imbalance in the exchange of gifts, like for instance one party feels that it is giving more than it is receiving, the aggrieved party will focus more attention on the exchange process, which may negatively affect the relationship (Blau, 1964). There is a high potential to develop trust between both parties as well, however, since parties make themselves vulnerable. A gift-giving party risks disappointment when there is no reciprocity forthcoming from the partner (Blau, 1964).

4.2.2 Description of gift-exchange theory

As already mentioned in the previous section, the gift-exchange theory by Akerlof (1982, 1984) incorporates sociological elements in an economic framework to explain wage rigidities, because sociological elements include new insights in the analysis of economic examinations. Thereby, Akerlof (1984, p. 204) highlights that "the sociological model can explain phenomena which seem inexplicable in neoclassical terms: why firms don't fire workers who turn out to be less productive, why piece rates are avoided even if they are feasible, and why firms set work standards exceeded by most workers." Social conventions and group norms are essential to this approach, seen as Akerlof defines social categories and norms as follows, "People divide themselves and others into social categories. And social categories and norms are automatically tied together: people in different social categories should behave differently. The norms also specify how people of different types – different social categories, in our new vocabulary – should treat each other" (Akerlof & Kranton,

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11 The concept of a social exchange is contrary to the economic exchange, which is characterized by an impersonal and self-interest relationship, a short-term character, the value is disclosed, the social context is insignificant, and there is a low potential of developing trust between both parties (see for a summary Balkin and Richebé (2007)).

2010, p. 11). The loyalty of employees to the operations of the firm is as an important factor for labor productivity (Akerlof, 1984). The efficiency wage can be interpreted as an expression of a normative consensus between labor market parties. The model of Akerlof is based on the idea that labor relations build on the principle of exchanging gifts. Thereby, employers pay wages above the comparable wages in the market. In response, employees are willing to supply a greater work effort, which could not be enforced by companies under the usual labor market conditions.

Akerlof's arguments refer to a study of Homans (1954), who provides an example of a group of young female employees ("Cash posters"), whose labor output was significantly above the average standard working output of the company. The company did not offer performance-linked payments, opportunities for promotions or other incentives, yet it was easy for the company to control the output of the workers. From the neoclassical perspective, it could be questioned why the company did not increase the standard working output and fire non-productive employees. In the same vein it is unclear why the group of young female employees did not decrease their working output to the standard working output. Akerlof (1982, p. 548) uses sociological arguments to explain this phenomena.

The sociological perspective on work behavior of groups contains that norms of a certain working group are finally the influential factor for the working output of the employees. This assumption is the starting point for the extension of the neoclassical perspective within the gift-exchange approach. Akerlof (1982) refers to a study of Mayo (1949, p. 70), "The working group as a whole actually determined the output of individual workers be referenced to a standard, predetermined, but clearly stated standard that represented the group's conception of a fair day's work. The standard was rarely, if ever, in accord with the standard of the efficiency engineers." Thereby, it is easier for an employee to assess whether the working conditions and the wage can be regarded as fair for himself within a working group. These thoughts can be applied to the principle of the gift exchange in a similar way. The worker's output is freely determined as long as he/she meets the standard working output. Every additional unit of output above the standard can be interpreted as a gift from the employee to the employer. For the employee, the gift refers to a payment which is above the level of payments in the market. Here, advantageous arrangements for both parties are met which are based on certain norms (or in Mayo's words standards.) This norm can be compared to the norm which includes the exchange of gifts at Christmas. This gift exchange can be regarded in the context of employer-employee relationships classified as "trading relationships" (Akerlof, 1982, p. 549) or reciprocity: if one entity gives something in order to deepen the relationship, this entity also gets something in return. While it can also be argued that some gifts are not regarded as gifts for recipients, but rather as something unnecessary or inadequate, Akerlof refers here to the development of emotions at the workplace. He argues that employees develop friendly sentiments towards other employees and towards the employer. And then "it is natural that persons have use for making gifts to institutions to which they have emotional ties" (Akerlof, 1982, p. 550). In Mayos (1953) words, if objectives of organizations are to be met, one must attempt

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to understand, respect, and consider emotions and needs of workers. He believed that employees are not just concerned with money but also need to have their social needs met to be motivated. He is of the opinion that workers enjoy interactions and that managers should respect their opinions. A further effect of the development of sentiments concerns the relationship towards co-workers. "If workers have an interest in the welfare of their coworkers, they gain utility if the firm relaxes pressure on the workers who are hard pressed; in return for reducing such pressure, better workers are often willing to work harder" (Akerlof, 1982, p. 550).

The inclusion of the influence of norms by Akerlof is an additional variable in the general utility function of wage and effort. This variable depends inter alia on the level of the unemployment rate, the height of the support for unemployed people and the respective utility function of colleagues. For example, the employer cannot pay individual performance related earnings, but group earnings. The utility of the individual employee increases when the pressure on the colleagues is smaller. This behavior, which can be interpreted as a gift from the company, reflects a sociological concept, implying that working groups react in different situations as one unit, whose members share certain standards and attitudes (Blien, 1986). Furthermore, the sense of justice of the employee is considered here: The employees need to regard the wage in context to their own performance, and in the context of other employees on the same level, as fair. This fair wage depends on several criteria (Akerlof, 1982):

➢ Perceived fair wage of the individual
➢ Actual wage of the individual in previous periods
➢ Wage paid of others in the individual's reference set in current and previous periods
➢ Unemployment benefits of individuals in the reference set in current and periods
➢ Number of unemployed in the reference set in current and previous periods
➢ Individual's work rules in current and previous periods

The gift-exchange model describes therefore the existence of involuntary unemployment with the reaction of the employer on the changes in behavior of the employees. The employees deliver a greater work output as long as they feel treated fairly. The wages above the market clearing wage induce involuntary unemployment. "If there is involuntary unemployment in an equilibrium situation, it must be that firms wish to pay more than the market-clearing wage. And that is the heart of any efficiency-wage theory" (Akerlof, 1984, p. 79).

4.2.3 Application of gift-exchange theory to ESCC

The following applies the characteristics of a social exchange to ESCC. Afterwards, the propositions of Akerlof's description will be adapted to function within this study's parameters. The five above-mentioned characteristics of social exchange stated that it is a personal relationship with an infinite time horizon, that the value of the gift cannot be disclosed, the social context of the relationship is highly

important, and that there is the potential of developing a trust relationship between both partners.

With regard to the first characteristic, generally, child raising is a matter of the private life of employees, which can be clearly assigned to non-work related tasks. Hence, it is not the responsibility of an employer to facilitate the reconciliation of caring and working. Consequentially, it can be argued that ESCC influences the relationship between both the employee and employer in a personal way built on a mutual concern. While it may be assumed that there is certainly a self-interest by the employer, it should be noted that others kinds of HR policies can be pin pointed to groups of employees, which might increase their work efforts, especially mothers. With regard to the time horizon, an indefinite nature could be interpreted in terms of an unlimited contract. However, it should be noted that ESCC with employees having termed contracts should not be excluded from this analysis, since there is on the one hand the possibility of extending the contract and on the other hand, the child is growing, which includes that parents are not dependent on ESCC over its lifetime. Concerning the disclosure of value of the exchanged resources, it is difficult to quantify the benefits of using ESCC. While some mothers would argue they save time due to the location of ESCC, others could argue that the perceived support makes the difference. Hence, this requirement for a social exchange can be regarded clearly fulfilled. The fourth characteristic concerns social context. Arguing from a psychological perspective, parents would certainly not include unvented actors in their childcare. Thus it can be assumed that mothers who are using ESCC have a kind of positive emotional reference to their employer. Altogether, the previous four characteristics have proven that ESCC might be a potential instrument to develop trust between the employee with childcare obligations and the employer.

The gift-exchange theory by Akerlof (1982, 1984) says that firms can increase norms of working groups or average effort by paying employees a salary (=a gift) which is higher than the required minimum salary. In return, the work effort of the employees is higher than the required minimum effort. Akerlof (1982, p. 362) defines this situation as a "norms of gift-exchange. On the worker's side, the 'gift' given is work […] and on the firm's side the 'gift' given is wages." Thereby, this efficiency salary is regarded as the normative consensus between the two parties. Akerlof points to two characteristics of the efficiency wage: firstly, it is paid by the employer and the employee does not pay for it. The employee reacts in return due to receiving the efficiency wage. This means, the employee does not pay money for it, but it is worth for the employer to offer the efficiency wage since the employee changes the work behavior through it. Secondly, the difference between the standard wages on the market and the paid wages, which are above this standard wage, are regarded as a gift in terms of an additional salary. In other words, the efficiency wage can be interpreted as a monetary incentive. While monetary incentives are common, they are not the only ones (Rosenstiel, 1975). The nature of incentives can vary and be expressed in different ways. Rosenstiel (1975) regards the organization's culture, communication systems, interpersonal relationships, location, and image as possible incentives. In the context of the gift-exchange model, the incentive is

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what lies measurably above the standard provided on the market. The provision of ESCC can hence be regarded as a gift by the company, if it is not the standard on the labor market to provide childcare support.

Balkin and Richebé (2007) discuss in how far organizational training can be regarded as a gift in the context of the gift-exchange model by Akerlof. Their steps will be applied to the context of ESCC.

Table 4-1: Application of ESCC on gift-exchange theory

Components of gift-exchange theory	Application to ESCC
Efficiency wage	ESCC can be provided in different ways
Purpose of efficiency wage	Employees receive support in the organization of their childcare obligation.
Expected returns of efficiency wage	Employees with childcare obligations increase their working time
Reasons for loss of expected returns from ESCC	Employer or employee violates gift-exchange rules: ESCC cannot be interpreted as an efficiency wage if the parents do not increase their working time through it
Which party is expected to pay for ESCC	Employer pays the organizational costs of ESCC and the employee pays the contribution, which needs to be paid for public childcare as well

Source: Extended on the basis of Balkin and Richebé (2007)

This table provides an overview of the components of the gift-exchange theory and its application on ESCC. The purpose of the introduction of ESCC by the employer is the expectation that the employee will reciprocate. The employer has an obligation to the employee once introducing ESCC. Employees with childcare obligations are expected to return the gift by increasing their working time. For mothers, this can be interpreted in two ways: it can either be an increase in the weekly working time or it can concern the time to the return to work after childbirth. The introduction of ESCC may also not be regarded as a gift-exchange, in the case that one of the two parties violates the rules of the exchange. From the side of the employer, it might be that the provision of childcare stops suddenly and the mother can no longer rely on its provision. From the perspective of mothers, this can be regarded as a violation of the gift-exchange rules. In turn, if she benefits from ESCC but does not increase her working time, she violates the terms. With regard to the payments for ESCC, the employer is responsible for the provision of the childcare facilities. While the original gift-exchange model by Akerlof did not consider payments on the side of the employee, the situation might be different here. While childcare is not free in

Germany, and parents need to pay for it, it can be that the employees need to pay partly for ESCC. The organization of ESCC is however on the side of the employers.

The heterogeneity on the labor market – and especially in internal labor markets – is an important consideration for employers when implementing a gift. It is important to know which employees can be motivated by incentives via gift exchange. It is widely acknowledged that social preferences, like reciprocity or inequity aversion, potentially do not only shape labor market behavior, but find consideration when incentive schemes are developed (Lepak & Snell, 2007). Falk (2007, p. 1510) states that "ultimately the successful initiation of a gift-exchange relation depends on *attribution,* that is, how kind, generous, or fair a particular action or gift is *perceived* by the recipient." The perception can depend on the workers' characteristics in terms of human capital and their social preferences or on the institutional characteristics of the company. Employers might design and deploy HR incentives that motivate certain employee attitudes and behaviors while discouraging others. Lepak and Snell (2007) state that the decision of an employer to introduce certain incentives might depend on the company's long-term strategy. For example, if a company wants to develop innovative and creative products, their incentives might include offering workshops on creative thinking. Lepak and Snell however do not mention that a company could also try to motivate distinct employee groups by introducing certain incentives.

4.3 Determinants for maternal employment decisions in a gift-exchange setting

After applying ESCC to the gift-exchange setting, this section discusses factors that may influence the relationship between maternal working behavior and ESCC and is divided into two parts focusing on both human capital and the hygiene factors established by Herzberg. Thereby, it is important to note that the hypotheses approach the relation between an efficiency wage and maternal labor supply influenced by third factors, rather than the relationship between third factors and maternal labor supply.

4.3.1 (Firm-specific) human capital

Current debates on human capital are substantially influenced by the work of Becker (1964). Human capital explanations are intended to explain phenomena which cannot be explained sufficiently by means of the traditional neoclassical model. They provide the implicit framework for the observation of a heterogenic workforce. For instance, distributions in the income level within a company depend on the diverse labor supply due to different investments in education. The central concept of human capital investments refers to all actions that influence productivity in the future. Therewith, the portfolio in human capital forms the productivity related capacities influencing the income. By integrating the qualification of individuals

in the production process, the individual becomes a good. This good can be then improved on by promoting further education or expanding the working capacities.

The relationship between investments in human capital and working income are solved in dependence on the neoclassical optimization problem. This implies that someone invests in human capital as long as the marginal costs of the investments equal present value, which are established by accounting for marginal costs. In analogy to an investment, it is assumed that there is an education model. In case that investments in human capital are conducted in form of education, it is expected that the productivity of the supplier is increased. According to the neoclassical model, the salary equals the marginal productivity of labor. Consequentially, a higher salary may follow an increase in productivity. The investments derive from the sum of monetary costs for the education plus time-related opportunity costs in form of a decreased salary during education and reduced free time. Work interruptions go along with a depreciation of human capital as time spent on other activities might hinder a return on the investment (Blau et al., 2006). Assuming that ESCC facilitates the working situation for mothers, the following hypothesis arises:

Hypothesis 1. The higher the human capital of a mother, the more likely she increases her working behavior due to ESCC.

Concerning the human capital, it has been argued that too narrow a definition of human capital in terms of formal qualification might bias the actual productivity of an employee. Becker (1964) differentiated between general and specific human capital, in dependence on who invests. General education is financed by the state or the individual itself, while specific human capital is mostly acquired through job training. This implies that the employer is financing it. Human capital is "to be defined by generic knowledge and skill, not specific to a task or a company" (Alan, Yochanan, & Josse, 2008, p. 20). It is predominantly accumulated through education. This knowledge embedded in an individual can be transferred to different industries and companies. Firm-specific human capital is predominantly accumulated through on the job training and working experience within a company. This kind of human capital is hard to transfer to other industries or even companies. The expected contribution of an employee to the company might be enhanced by a resulting psychological contract (Schein, 1980). This implies that the employee inhabits a leadership position or has an extraordinary degree of autonomy. Productivity might be enhanced through informal arrangements unrelated to the formal education. In line with this argumentation, Lepak and Snell (2002) developed a model highlighting how higher contributions of an employee influence the employment mode, which in turn influences the acceptance of HR policies. Consequentially, the following hypothesis arises:

Hypothesis 2. The higher the firm-specific human capital of a mother, the more likely she increases her working behavior due to ESCC.

4.3.2 Hygiene factors

Section 4.1.5 "Work motivation and maternal employment" concluded with the statement that it can be expected that female employees with childcare obligations are a heterogenic group. Their reaction to external incentives might be dependent on individual attitudes, personal circumstances, or prevailing norms. This section discusses the hygiene factors of Herzberg et al (1959) as potential drivers for the influence of ESCC on working behavior. These are company policy and administration, the relationship to the supervisor, the working conditions, the status and satisfaction with salary, some working with several distinct hypotheses.

The first category is called *company policy and administration*. Herzberg et al (1959, p. 47) mention that "some over-all aspects of the company" influence the motivation of individuals at work. Thereby, personnel policies are highlighted. They put it in a rather drastic way by stating that the effects of company policies are either positive or "malevolent", but not ineffective. A positive effect of certain company policies is supported by Greenhaus and Powell (2006), who demonstrate that a satisfying performance in one area of life (for instance at the workplace) can have spillover effects onto other fields of life (for instance at home). Thereby, they argue that the selection of the policies is however substantial; for instance, corporate-sponsored elderly support might affect a wider span of the employees compared to ESCC. Moreover, it is also a greater task to satisfy the needs of a greater target group. Hence, the supporting positive effect of further policies should be focused on the target group.

Hypothesis 3. Mothers are more likely to increase their working behavior due to ESCC if their employer offers explicit HRM for employees with childcare obligations.

Another dimension of this category refers to the *economic sectors*. The different economic sectors are marked by distinct working environments and employee attitudes. An overwhelming distinction is made between the public and private sectors. Frey, Homberg and Osterloh (2013) argue that intrinsic motivation in the public sector is just expanded by external incentives with certain characteristics (for instance in form of awards). These characteristics are not fulfilled by ESCC. It is however argued that employees in the public sector have a greater intrinsic motivation compared to employees in the private sector, if their work is related to the contribution of public goods with the purpose of doing good for others or society. This statement seems to be valid for the health and education sector, independent of businesses public or private nature (Perry, 1997).

Hypothesis 4. The reaction of mothers on ESCC depends on the economic sector.

a. Mothers are less likely to increase their working behavior due to ESCC if they are generally working in the public sector.

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b. Mothers are more likely to increase their working behavior due to ESCC if they are working in the health sector.

Concerning the differences amongst companies in the private sector, Frey and Oster-loh (2000) argue that crowding in is supported when incentives are introduced unexpectedly. The introduction of incentives in unexpected situations might strengthen this effect. Consequentially, the initial position, independent of the efficiency wage, must be considered. Flynn (2005) concludes that the reaction to efficiency wages depends on the degree of unionization within a sector. The unionization of a sector depends in turn on the degree of completeness of the contract. Incomplete contracts do not specify actions and payments for all possible contingencies. They contain gaps that must be filled by negotiation, convention, or formal dispute resolution procedures. Complete contracts specify the respective rights and duties for every possible future state of the relationship between both contracting parties (Klein, 2014). For example, due to the nature of production processes, assembly line industries prefer complete contracts since workers either keep up with the line or not. In these situations, there is little possibility to introduce gift-exchange settings in which employees give greater effort in exchange for higher wages. As a result, the employees in these situations are prone to unionization. In sectors marked by incomplete contracts, however, like knowledge-intensive work, gift-exchange and reciprocity are already in place (Krueger & Summers, 1988). The employers want to maintain a positive and productive labor-management interaction, which can be guaranteed through benefits in the employees' interest. Hence, it can be expected that a higher degree of unionization decreases the likelihood of efficiency wages, but, if an efficiency wage is introduced, workers are likely to react to them. Independent of unionization, a lower wage level is mostly associated with a greater reaction towards a newly introduced efficiency wage compared to a higher wage level (Lang & Leonard, 1987).

c. Mothers are more likely to increase their working behavior due to ESCC if they are working in production-based sectors.
d. Mothers are less likely to increase their working behavior due to ESCC if they are working in knowledge-based industries.
e. Mothers are more likely to increase their working behavior due to ESCC if they are working in the service sector

Herzberg et al (1959) highlight that interpersonal relationships at the workplace are especially important in times of changes. These changes might appear either at the workplace itself, for instance due to restructuring processes, or in an employee's private life (for instance becoming a parent). The *relationship to the supervisor* is especially relevant here, as the supervisor can discourage or encourage employees and thereby affect their work attitude. Additional support for this premise comes from the perceived supervisory support theory. Coming from the psychological perspective, it started with the perceived organizational theory saying that if managers are concerned with their employees' commitment to the organization, employees

are focused on the organization's commitment to them (Eisenberger, Hungtington, Hutchison, & Sowa, 1986). In 2002, the same authors proved that perceived organizational support stems predominantly from perceived supervisory support. "Because supervisors act as agents of the organization, who have responsibility for directing and evaluating subordinates' performances, employees would view their supervisors' orientation toward them as indicative of the organization's support" (Eisenberger, Stinglhamber, Vandenberghe, Sucharski, & Rhoades, 2002, p. 566). The authors argue that a supervisor who is powerful and has a high (informal) status is even more influential for the behavior employee than the company itself.

Hypothesis 5. Mothers are more likely to increase their working behavior due to ESCC if they perceive their supervisor as supportive.

Herzberg et al (1959) mention as a further external factor the *working conditions* which influence the physical conditions at work. In the context of maternal employment, working time is one determining factor. Since public childcare availability is often constrained in terms of opening hours or flexibility, mothers often need to adjust their working time accordingly. "Buying" external childcare at the weekend or adjusting it to irregular schedules might be more expensive than regular care. However, it needs to be noted that informal care might be more easily available during irregular times as the partner or family may work during standardized time. Nevertheless, the latter argument should not be included in these derivations as a constant and regular childcare opportunity, but rather in terms of emergency care (Blau et al., 2006).

One way of getting independent of restricted childcare opening times deals with flexible working arrangements (Blau et al., 2006). A certain degree of flexibility in the working arrangements is helpful in situations like the illness of a child. Hence, mothers without flexible working arrangements might value ESCC to a greater degree compared to women benefiting from it, under the assumption that ESCC is adapted to the needs of the employees.

Hypothesis 6. Mothers who are not able to use flexible work arrangements are more likely to increase their working behavior due to ESCC, compared to mothers who are able to use flexible work arrangements.

The previously stated assumption is also relevant for the following hypothesis. It was argued that external childcare at irregular times may be more expensive and informal childcare may not provide a consistent alternative, but rather function as emergency care.

Hypothesis 7. Mothers primarily working at irregular times are more likely to increase their employment rates due to ESCC.

Herzberg et al argue that the *personal situation* can be relevant for the expansion of work motivation if "some aspect of the job affects personal life in such a way that the effect was a factor in the respondent's feeling about his job" (Herzberg et al,

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1959, p. 49). This includes, for instance, family problems rooted in the job situation. While Herzberg et al. refer to the influence of private life on working life, the opposite trajectory may be equally important: the work-family border theory by Clark (2000) states that people are daily cross-borders between the domains of work and family. According to Clark, work and family constitute two different spheres of the individual, which influence each other constantly. Both spheres are defined by its own culture and purpose. The connection between both domains may require individuals who experience a certain degree of uncomfortableness in one domain to try and separate both domains as far as possible. Even if there are incentives in one domain to support the other domain, individuals rather stick to a separation of both.

Hypothesis 8. Mothers who perceive their work as stressful and too demanding do less likely increase their employment rates due to ESCC.

While the decisive factor might not be working arrangements of the mother, but the childcare situation as itself, the expected behavior to efficiency wages depends on the extent to which employees assess one incentive as useful. Eventually, the greater the effect of the perceived benefit, the more likely that an employee changes its behavior (Gross & McMullen, 1983).

Hypothesis 9. Mothers are more likely to increase their working time due to ESCC if they perceive their current childcare situation as less satisfying.

Herzberg et al. argue that the *status* is only relevant if there is "some sign or appurtenance of status as being a factor in his feeling about the job" (Herzberg et al, 1959, p.49). A similar approach is supported by Ajzen (1991). The theory of planned behavior draws a distinction between individuals' attitudes toward a behavior and their normative beliefs. Hence, individuals assess for themselves what others think they should do. The assessment is consequentially a precursor of the planned behavior. Indeed, the opinions of colleagues or superiors are important for employees when deciding about the adoption of family-friendly HRM (Powell, 1997). According to social identity theory (Turner, 1975), people tend to organize themselves and others into various social categories. One of these categories is employees with childcare obligations. As one pushing factor for career-oriented women, Lewis (1991) suggests a male-oriented pattern of working. Using family-friendly benefits means diverging from male-oriented patterns of working and reveals a social identity of lesser value in a work context. Thereby female employees with childcare obligations with a strong career orientation might increase their employment rates when they are using ESCC to overcompensate the recognition of being a mother.

Hypothesis 10. Mothers are more likely to increase their employment rates due to ESCC if they state that establishing a reputation in their job is important for them.

Herzberg et al. (1959) mentioned that the salary is relevant here if there are "unfulfilled expectations" due to an unsatisfying salary. Additional support for this premise comes from the fair wage hypothesis (Akerlof & Yellen, 1990). According

to the hypothesis, workers have a conception of what constitutes a fair wage. If the actual wage is less than the fair wage, employees supply a corresponding fraction of normal effort. As a consequence, employees react more strongly to an efficiency wage if they generally perceive themselves as fairly treated by the employer.

Hypothesis 11. The higher the satisfaction with the salary, the more likely a mother increases her employment rates due to ESCC.

4.4 Critical acclaim and concluding remarks

Before summarizing the main implications of this chapter, there needs to be a critical assessment of the present theories, starting with Herzberg's dual-factor theory. The theory is widely accepted in the field of human resource management. However, some points of critique have continuously been raised. For instance, Reid (2002) highlighted that Herzberg's theory is an examination of job satisfaction rather than work motivation. If hygiene factors, such as a low salary, are not addressed, the full effect of intrinsically rewarding factors cannot be felt. Moreover, Brenner, Carmack, and Weinstein (1971) highlight that their and other studies examined that the employees received job satisfaction and job dissatisfaction from both the motivating and hygiene factors, rather than that motivation affected job satisfaction and hygiene factors job dissatisfaction. Latham and Locke (1979) argue that job satisfaction and dissatisfaction result from different causes.

Within the scientific discussion, some points of critique on the gift-exchange theory have emerged. Most of these points were discussed by Sesselmeier and Blauermel (1998). Scheuer (1987) says that the recourse by Akerlof on the study of Homans (1954) is critical. Scheuer argues that the behavior of the working group was due to egotistic reasons rather than the interpretation of Akerlof. The friendly emotions Akerlof raises are probably strongly dependent on the working atmosphere within the company, so that positive as well as negative effects correlate. In addition, the recourse to the sociological study of Mayo (1949) by Akerlof is critical as well, both studies focusing on the retention of employee performance. Thereby, the impression arises that the recourse to the sociological studies does not serve with the intention to include their explanations of group behavior of employees. Rather, it could be that the references to the sociological studies serve as a purpose of explaining this behavior. Blien (1986) criticizes that Akerlof connects the emergence of positive emotions to the company and to the colleagues as "natural". Blien argues that any behavior can be explained by presuming a certain preference to the actor, which has the intention to achieve this preference. This behavior is simultaneously means and ends in itself, and thus doubled within the theory, which can be described as "tautological doubling." Franz (1986) criticizes that a (gift) exchange has underlying intentions and thus cannot be regarded as a present, but rather needs to be termed an investment. Nevertheless, it should be noted that even very high

wages can just motivate employees to a certain degree. Turning a performance into a top performance takes conviction.

Considering these criticisms, using Akerlof's gift exchange theory for the analysis of ESCC as a non-monetary efficiency wage seems to be applicable still. Especially since several studies have done so beforehand.[12] Herzberg et al.'s work motivation theory has not so far been used in the context of the analysis. It seems, however, a useful strategy since it includes working factors as well as private factors. This provides a multi-methodological approach to investigating (maternal) labor supply, where most previous work focused on monetary aspects.[13]

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12 For an overview see Ashenfelter and Card (2011).
13 For a discussion see Chaudry, Henly, and Meyers (2010).

5. Research methodology: Measuring the Effects of ESCC

5.1 Research objectives and questions

The goal of this thesis is to provide a comprehensive overview of the effects of ESCC on the employment rates of mothers and answer the question if mothers who are working for employers with ESCC are more likely to increase their working behavior than mothers whose employer does not offer ESCC.

The operationalization of "work behavior" is important here. Within the field of impact evaluations, work behavior can be analyzed in two different ways: firstly, it can be measured in terms of quantifiable work output. This implies for instance working time in terms of working volume, time-to-return-to-job after work interruptions, and productivity. Since productivity is often hard to measure (except for working on assembly lines), the working time is often taken as an alternative measurement. Secondly, it can be traced in working attitude. The working attitude might be measured in terms of job satisfaction, turnover intentions, or work-life conflicts, according to Cropanzano and Mitchell (2005). While the quantifiable work output is often analyzed with micro data of employees, the working attitude is mainly investigated with qualitative questionnaires. This thesis approaches the working behavior in terms of quantifiable output, meaning the working interruption per se and the working volume.

Distinct sub-research questions have been developed to aid in answering this question in a productive manner. Work behavior will be explored for each of the distinct stages of being a mother. It is differentiated between the return to work after childbirth and the working volume of mothers with young children. Possible benefits to the mother from ESCC, if used by herself or her partner, are examined. While the previous applications of work behavior focus explicitly on the working time as measured in quantitative terms, the theoretical framework has already hinted that the effects might go beyond this definition. One sub-research question addresses the qualitative effects of ESCC in terms of the working attitude. To be able to discuss the effects of ESCC for maternal labor supply comprehensively and analyze its implications, effects of ESCC for the provider will also be considered. As the theoretical framework demonstrates, the employers provide efficiency wages for employees since they expect a greater working effort in return. Accordingly, while it is not the focus of the thesis, a distinct part of the analysis is dedicated to explore the effects of ESCC on the employer in monetary terms.

i.   What is the effect of ESCC on the duration of work interruption after childbirth?
ii. What is the effect of ESCC on the type of employment (marginal, part-time, full-time) after childbirth?

iii. Does ESCC have an effect on the working hours when a mother has young children?

iv. Is there an impact of ESCC on the work behavior of mothers when the employer of the father offers ESCC?

v. Are there further effects of ESCC which go beyond the narrow measurement of labor supply for mothers?

vi. Are there additional positive effects of ESCC for the provider of ESCC, which is important since ESCC is offered voluntarily?

5.2 Research strategy

The research strategy can be categorized as explanatory research. The preliminary goal deals with the identification the relationship between two variables and the identification of possible additional factors influencing the relationship. Hence, it is questioned whether a causal relationship exists between two variables. Both the dependent variable as well as potential causes are able to change over time (Babbie, 2015) requiring the application of a deduction base approach. This approach implies a top-down analysis. A broad theoretical framework is presented to derive specific hypothesis from it. This hypothesis will be tested by means of an econometric analysis to assess whether there is a causal impact. Finally, the hypothesis can be confirmed or rejected leading to a comprehensive conclusion regarding the relationship between both variables (Shadish, Cook, & Campbell, 2002). The time frame of this study covers the years from 2009 to 2012. The time span is given by the data set. The data collection took place after the parent's money reform in 2007, but before the introduction of parent's money plus in 2015. Furthermore, at the end of the data collection process, the law on the right for childcare facilities for children older than one year had been introduced in Germany. The specific time span of the dataset might be in itself a distinct factor for the analyzed working behavior of mothers. The research strategy inhabits that several pre-tests have been conducted to exclude variables in the statistical analysis, which do not inhabit explanatory power. Consequentially, variables, which could hypothetically be used are excluded beforehand. These include the commute distance as well as the company size. Further variables have been excluded in distinct specifications. Furthermore, pre-tests on interactions of the control variables, for instance living in former East or West Germany and the income, have been made to reveal whether there are significant dependencies between them. The pre-tests revealed, however, that they should not be included in the final regression specifications.

To estimate the relationship between two variables, the potential influence of additional factors must be excluded.

Figure 5-1: Schematic illustration of relationship between two variables and third factors
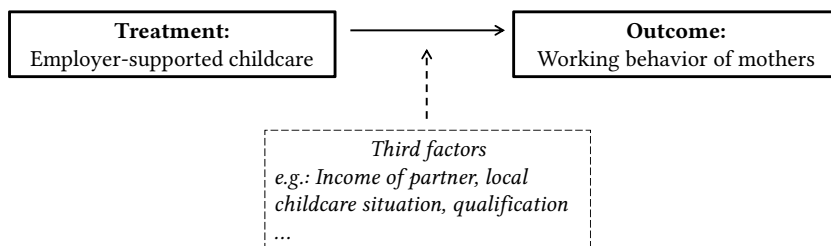
Source: Own design

The above demonstrates that there might be additional factors influencing a relationship between two variables. In this context, it might be that mothers react differently on ESCC in dependence on the local childcare situation. For instance, mothers living in an area with an above-average kindergarten in terms of opening times might value ESCC less than mothers who are dependent on restricted opening times. Based on the theoretical framework and the literature review, potential third factors have been identified and are included in the econometric model.

There are two further challenges which hamper the estimation of the true impact of ESCC and maternal labor supply. Therefore, the remaining part of this chapter deals with the discussion of the relevance of a control group and the problem of self-selection.

The major challenge of impact evaluation "is to determine what would have happened to the beneficiaries if the program had not existed" (Khandker, Koolwal, & Samad, 2010, p. 43). The outcome for an observation without the policy intervention would be counterfactual or a hypothetical. The challenge is therefore to assess the true impact of policy intervention independent of other factors by comparing actual and counterfactual outcomes with the obstacle that the counterfactual outcome can only be speculated. Ideally, one would be able to observe the two different states simultaneously. Since this is not possible, one is forced to find an appropriate control group. There are generally two ways to find an appropriate control group, which can also be combined. One is to compare the behavior of individuals benefitting from the policy intervention, and individuals who do not have access to it. Here, it is advantageous that the comparison is conducted at the same time. It can be assumed that time-related factors do not influence the effect. The other way is to compare the behavior of individuals benefiting before and after the introduction of the policy intervention. One advantage here is that unobservable factors can be considered. For instance, it might be that certain preferences of mothers are relevant for the reaction towards ESCC (Khandker et al., 2010). The following equation represents the basic evaluation problem

$$Y_i = \alpha X_i + \beta T_i + \varepsilon_i \qquad (5.1)$$

whereby Y denotes the outcome of the policy intervention, i represents the treated and non-treated individuals, T is a dummy variable indicating whether one benefits from the policy intervention or not and X refers to other observable characteristics of the observations. ε is the error term, including unobservable characteristics which are also affected by Y. This equation reflects the basic approach of measuring the direct effect of the program T on the outcome Y. The problem of the equation is that the assignment of policy intervention might not be random since the policy might be placed on purpose by the provider or because observations self-select the program. The first point inhabits that the polices are introduced due to special needs and thus, just previously defined observations benefit from the program. The second point highlights that individuals self-select the program due to unobservable or observable characteristics. In case of unobservable factors, the error term would contain further variables, which are also correlated with the treatment variable. Since they are unobservable (for instance certain preferences), they cannot be measured and lead to bias. Therefore, one of the key assumptions of ordinary least square estimations is violated and leads to biased estimates. This is assuming the independence of regressors from the disturbance term and is stated as $cov\,(T,\,\varepsilon) \neq 0$. The correlation between the treatment and the error term naturally biases other estimates in the equation, which consequentially leads to an outcome, which is biased as well. One way to deal with this approach is to assume that selection bias disappears if "one could assume that whether or not households or individuals receive treatment (conditional on a set of covariates, X) were independent of the outcomes that they have" (Khandker et al., 2010, p. 48). The assumption of not being confounded is also known as the conditional independence assumption.

Two ways to address these presented challenges are discussed and applied in section 5.4. "Impact evaluation techniques and applications". Beforehand, the data set is described.

5.3 Dataset

The main requirement for the data set concerns the identification of variables on ESCC. There are currently two data sets which would fulfill this requirement. The linked employee-employer dataset is the only database in Germany, which provides representative micro data on employer and employees simultaneously. It includes variables on gender, age, nationality, qualification, education, working volume, economic sector of establishment, place of residence and work or first day in establishment. Some variables can be used to derive further information. For example, extraordinary wage increases can be identified as indicators for the uniqueness of an employee. The linked employee-employer dataset has an extra questionnaire on a regular basis regarding family-friendly HR policies including the question "Does the company offer childcare assistance?" This questionnaire has been used in the years 2002, 2004, 2008 and 2012 (Heining, Scholz, & Seth, 2013).

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The alternative data set is FiD. This data set is an integrated part of the Socio-Economic Panel for Germany (SOEP). Data collection took place between 2010 and 2013. It was established for the study "Zur Gesamtevaluation der ehe- und familienbezogenen Leistungen in Deutschland", which was conducted and published in the year 2014 by the BMFSFJ (2014). This new data set represents data sets for the following societal groups not sufficiently covered in the SOEP: single parents, low income families, large families with three or more children, and families with particularly young children. The data set includes information on household characteristics, education, past and current labor market experiences, earnings and income, housing characteristics, health, select preferences, and life satisfaction. In addition, there is a stronger focus on children and partnership. This implies that mothers and fathers are asked specific questions regarding their childcare decisions and ensuing satisfaction. Specifically, they were asked whether the employer offers on-site childcare, rents childcare spots in local kindergartens, and/or offers financial support. Thereby, it is differentiated between availability and usage of ESCC (Schröder, Siegers, & Spieß, 2013).

The FiD data was favorably used here, because it offers more detailed questions in regards to ESCC. In addition, the FiD contains specific information on childbirth and childcare. For instance, the date of birth of children is not included in the linked employer-employee data set, but need to be estimated by means of the social insurance reports of the employees. The FiD also provides a large amount of questions on the household and individual circumstances of an employee. Some of these pieces of information are included in the linked employer-employee data set as well, but they are asked when the person is entering the data set and not updated afterwards. Altogether, the linked employer-employee data set would offer more information on the employer, while the FiD inhabits rarely basic ones (for instance economic sector). Hence, for the purpose of answering the above stated research question, the FiD seems to be more suitable. In case of answering a research question on the introduction of ESCC as itself, the linked employee-employer data set would probably be more suitable.

5.4 Impact evaluation techniques and application

This sub-section describes the econometric models applied in the subsequent empirical analysis. After the description of the models, the models will be applied to the situation at hand. With regard to the duration of the work interruption after childbirth, EHA is used. A CRM aids in analyzing the extent of the working volume when returning to work. Both models use the same framework and are longitudinal. Concerning the return to work after childbirth, two different kinds of models are used to include robustness checks since each model has its own shortcomings. They are called PSM and DiD estimations.

5.4.1 Time and extend of return-to-job after giving birth

5.4.1.1 Event history analysis and competing risk models

EHA focuses on changes which happen at a specific point in time to a sample of individuals (Allison, 1984). The following description of EHA is mainly derived from Teele (2016) and Cleves, Gould, and Marchenko (2016).

In EHA, observations can be either regarded as left- or right-censored. Right-censored cases do not experience the failure within the time set available, while left-hand censored cases do not experience the starting point of the analysis within the dataset. The main concept of EHA is the hazard rate, which estimates the conditional probability that an event will occur, given that it has not already occurred. Thereby, the hazard rate $H(t)$ can be regarded as the cumulative distribution function of the probability that a certain event will occur. The hazard rate has two main mathematical components: the survival function S(t) and the probability of failure f(t). These terms are adopted from the natural sciences, where EHA has firstly been applied to analyzing the life cycle of living organisms. Let T be a random variable, the probability, that an individual will experiences an event at time$_j$ is found in the failure function, where j indicates the time span (for instance measured in months):

$$f(t) = \Pr(T = t_j) \qquad (5.2)$$

The survival function as the second part of the hazard is defined as

$$S(t) = \Pr(T \geq t_j) = \Sigma_{j=i}\, f(t_j) \qquad (5.3)$$

The hazard rate is the mathematically stated ratio of the probability from failure to survival. This can also be expressed in other terms, namely conditional probability of survival given that a failure has not already occurred. There are two ways to express this relationship.

$$h(t_j) = \frac{f(t)}{S(t)} \qquad (5.4)$$

$$h(t_j) = \Pr(T = t_j \mid T \geq t_j) \qquad (5.5)$$

The last equation reveals the rate at which an individual experience the failure conditional on their survival until j. The inclusion of time-varying explanatory variables $x_{i,j}$ lead to the following augmentation of the hazard:

$$h(t_j \mid x_{ij}) = \frac{f(t_j \mid x_{it})}{S(t_j \mid x_{it})} \qquad (5.6)$$

The survivor function is also applicable for subgroups of the sample to compare the developments of the time of an observation in connection to certain characteristics.

Therefore, the Kaplan-Meier estimator is a common tool. This estimator is the "product of the percent of observations in the sample that survive each period" (Teele, 2016, p. 6). Mathematically, the Kaplan-Meier estimator can be expressed in the following way for each sub-group:

$$\hat{S}(t) = \prod_{j|t_j \leq t} \frac{n_j - r_j}{n_j} \qquad (5.7)$$

Where n_j represents the number of observations at risk of failure at time, t_j and r_j denote the number of observations that perceived the failure within period t_j. In other words, the Kaplain-Meier survivor represents the cumulative survival point at any given point.

With regard to the regression analysis with the inclusion of time-invariant covariates, the Cox proportional hazard model is generally chosen for the specification of the regression models. It leaves the baseline hazard unspecified, allowing the researcher to obtain estimates of the covariates for impact evaluation without having to make constraining assumptions about the distribution of event occurrence times. Therefore, the Cox proportional hazards model was chosen for two reasons: the hazard function does not have to be specified as it relates to time and the values of explanatory variables can change over time. The Cox model "is called the proportional hazards model because for any two individuals at any point in time, the ratio of their hazards is a constant" (Allison 1984, 33–34).

The EHA as it has been presented here analyzes the context if an individual is able to decide between two competing risks. However, it might be also the case that it is relevant to analyze the choice between several competing risks. In CRM, an individual can potentially fail from any of several K event types, but only the time to failure for the earliest (in time) of these (or the last follow-up time if no failure has yet occurred) is observed. These events are mutually exclusive. Here, the two following denotations are relevant which are taken from the observations. T denotes the failure time and δ denotes the failure status indicator that inhabits either the type of failure that occurred or indicates that no failure has occurred. Thereby, two different sets of information can be acquired although only one event time is recorded. For instance, if someone failed from δ = cause A at T= 2 months, it is known simultaneously that the person has achieved 2 months free of failure from cause 2.

The cause-specific hazard function $\lambda_k(t)$ is the principal identifiable quantity in competing risk observations. It represents the probability of failure due to cause k at a moment in time, given that no other failure of any kind has occurred previously. The cause-specific hazard summed from start of observation to time is denoted $\Lambda_k(t)$ as the cumulative cause-specific hazard. The following equation inhabits the cumulative hazard function for failures from any cause. The cause-specific hazards for k events are additive to the hazard of the failure from any of the events, leading to the following equation

$$\Lambda(t) = \Lambda_k(t) + \Lambda_k(t) + \Lambda_k(t) \dots \Lambda_k(t) \qquad (5.8)$$

The corresponding survival function S(t) is defined as the probability of remaining event-free past time t. Hence, an individual experiences no event. It is denoted as S(t) = exp(-Λ(t)) (Cleves et al., 2016).

5.4.1.2 Application

In the context of maternal employment, EHA is often applied to analyze the time of a mother's entry into paid employment after childbirth. For instance, Loft and Hogan (2014) analyze the effect of care availability on a mother's entry into paid employment in the USA after childbirth. They show that use of non-parental child-care prior to employment is independently and positively associated with entry into maternal employment.

Here, the unit of analysis consists of all mothers who gave birth in the observed time period. Thereby, a comparison is made between mothers who were working in a company providing ESCC before giving birth, and mothers, who do not have an employer offering ESCC. The time spells are counted in months. The month of giving birth is regarded as the zeroth spell and continuously counted for each observation distinctively. The greatest amount of possible spells is 48 if a mother gave birth in the first month of the prevailing dataset. The unit of analysis focuses on mothers who gave birth for the first time or if the newborn child has siblings, who are no longer at pre-school age. This decision ensures a consistent interpretation of the results. For instance, if a mother is already using a kindergarten for her three-year old child, the provision of ESCC might not be as influential as for mothers who give birth for the first time. A similar approach is chosen by Fitzenberger, Steffes and Strittmatter (2015). It should be noted that mothers who are receiving the parents' money, are still allowed to work up to 30 hours per week (Wrohlich et al., 2012)[14]. Hence, mothers who are subject to the parents' money are included in this analysis.

Since there is a wide range of possible independent variables and to develop the most powerful model, the tests of equality across strata are considered to explore whether or not to include them in the final model. For the categorical variables, the log-rank test of equality across strata has been used. For the continuous variables, a univariate Cox proportional hazard regression has been used. They are included if the test has a p-value of 0.25 or less. If the variable has a p-value greater than 0.25 in a univariate analysis, it is highly unlikely that it will contribute anything to a model which includes other variables (Cleves et al., 2016).

To test the effects of the hypothesis on the regression model, it is important to consider the effect of the hypothesis in combination with the provision of ESCC. Therefore, interaction terms are used, when an independent variable is assumed to have a different effect on the outcome depending on the values of another independent variable. For instance, the interaction "Availability ESCC * Usage of HR policies"

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14 The parents' money plus has not been in place during the data collection process.

is included in the regression. The resulting coefficient is the effect of usage of HR policies in dependence on the availability of ESCC on the outcome variable. The theory has highlighted that HR policies might be influential as well. Hence, usage of HR policies is included (Stock & Watson, 2007).

5.4.2 Working volume with pre-school children

5.4.2.1 Propensity score matching

PSM is a commonly used method to assess the effect of a policy on an outcome variable. In a nutshell, a treatment and a control group are matched according to similar observable characteristics based on a propensity score. The only difference between both groups is that the treatment group benefits from the introduction of a policy and the control group does not (Heckman, LaLonde, & Smith, 1999). The following description is derived from Khander, Koolwald and Samad (2010).

The construction of a statistical comparison group in PSM derives from a model regarding the probability of participating in the treatment T conditional on observed characteristics T, or the propensity score: $P(X) = Pr(T = 1|X)$. It is thus necessary to assume the conditional independence and the presence of a common support.

The conditional independence assumptions, also seen as not confounded, highlight that potential outcomes Y are independent of the assignment to the treatment T, given selected observable variables X, which are not impacted by the treatment. The conditional independence implies that denoting the outcome for the treatment group and Y_i^T denoting the outcome for the members of the control group

$$(Y_i^T, Y_i^C) \perp T_i \mid X_i \qquad (5.9)$$

This assumption is not directly testable since it depends on the distinct features of the policy. There are unobserved characteristics which influence the participation in policies, conditional independence will be violated. Having a dataset with many variables helps to support the conditional independence assumption since one is able to control for several observable characteristics which might affect being in the treatment under the assumption that unobserved selection is limited.

The second assumption, called common support or overlap condition, ensures that the members of the treatment group have members in the control group nearby in the propensity score distribution

$$0 < P(T_i = 1|X_i) \qquad (5.10)$$

A substantial region of common support requires that the amount of members in both treatment and control groups are roughly equal. The more equal both groups, the higher is the effectiveness of PSM. This assumption includes that some members of the control group might have to be dropped if they have no similar counterparts in the treatment group in terms of observed characteristics unaffected by the usage of the treatment policy. In case that a member of the treatment group needs to be dropped, a potential sampling bias must be considered.

Applying PSM requires the estimation of program participation, meaning that participation T is estimated on all observable variables X that are likely to influence participation. Therefore, a logit model can be used to compare the outcomes for the members in the treatment group (T=1) with the members in the control group (T=0). Afterwards, the predicted values of T from the participation equation can be taken. The predicted outcomes can be interpreted as the estimated probability of participation in the treatment group, also known as the propensity score. Every individual in either treatment or control acquires an estimated propensity score denoted as $\hat{P}(X|T_i = 1) = \hat{P}(X)$ Furthermore, one needs to define the region of common support and conduct balancing tests. The definition of the region of common support refers to overlapping of the distribution of the propensity score for the treatment and control group members. This issue implies that some observations might need to be dropped if they have extraordinary values in one of the observable covariates. The balancing tests inhabit that it needs to be checked whether $\hat{P}(X|T = 1) = P(X|T = 0)$. This implies that the average propensity score and the mean of X are similar within each quantile of the propensity score distribution. It might be that that a matched couple consisting of observations in the treatment and control group have a similar propensity score, but misspecification exists. Hence, it will be checked whether their scores are based on similar observed X. It is also necessary to match participants to nonparticipants. The matching process is conducted with two different approaches for robustness purposes. Firstly, radius matching ensures that each individual of the treatment group is matched with persons from the control units when they have a propensity score in a "predefined neighborhood of the propensity score of the treated unit" (Becker & Ichino, 2002, p. 361). Thereby, the size of the radius can influence the likelihood of including or excluding certain control units. For instance, control units with an extreme propensity score might be excluded. Kernel matching is taken as a second method. Thereby, all units of the treatment group are matched when they have a "weighted average of all controls with weights that are inversely proportional to the distance between the propensity scores of treated and controls" (Becker & Ichino, 2002, p. 362). Finally, the average treatment impact can be assessed by taking the mean difference in outcomes over the common support, weighting the comparison units by the propensity score distribution of the participants.

5.4.2.2 Difference-in-Difference estimator

The differences-in-differences estimator (DiD) allows unobserved heterogeneity, which could otherwise influence the selection bias. Thereby, the DiD estimator "compares treatment and comparison groups in terms of outcome changes over time, relative to the outcomes observed for a pre-intervention baseline" (Khandker et al., 2010, p. 72). The DiD estimator estimates the average impact of a policy as follows:

$$DiD = E(Y_1^T - Y_0^T | T_1 = 1) - E(Y_1^C - Y_0^C | T_1 = 0) \qquad (5.10)$$

Here, t=0 is defined as the time period before the intervention and t=1 equals the time-period after the intervention. Y_1^T and Y_1^C define the outcomes for the members

of the treatment group and respectively the control group. The comparison of treatment and control group members before and after the introduction of a policy are the essential components of the DiD. Hence, baseline data before the intervention allows an estimate for the impact under the assumption that unobserved heterogeneity is time invariant and is uncorrelated with the treatment over time. Under this assumption, the control group with individuals who do not benefit from the treatment policy (that is, $E(Y_1^C - Y_0^C | T_1 = 0)$) can be used as an appropriate counterfactual for the treatment group (that is, $E(Y_1^T - Y_0^T | T_1 = 1)$). The following figure shows a schematic illustration of the calculation of a DiD outcome.

Figure 5-2: Schematic illustration of DiD analysis
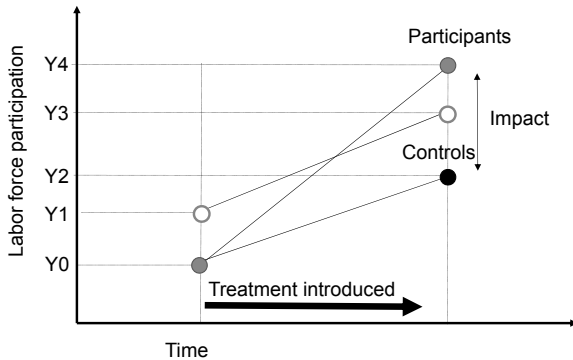
Stating it in descriptive terms, measuring the average difference in outcome for treatment and control group members distinctively across the board and afterwards calculating the difference between the average changes in the outcomes of both groups will lead to the impact called DiD. In mathematical terms, it would be stated as DiD = $(Y_4 - Y_0) - (Y_3 - Y_1)$.

The lowermost line depicts the true counterfactual outcome, which is actually never observed. The figure shows that the DiD approach always assumed that there are unobserved characteristics which create a gap between the measured control outcomes and the true counterfactual. However, it is assumed that this gap is time invariant as it is demonstrated by the two trends in the figure. This assumption can be stated in the following terms: $(Y_3 - Y_2) = (Y_1 - Y_0)$. Using the equality in the preceding DiD equation, the consequentially derived outcome would be DiD = $(Y_4 - Y_2)$. Applying the DiD estimator in a regression framework would lead to the following equation

$$Y_{it} = \alpha + \beta T_{i1} t + \rho T_{i1} + \gamma t \, \varepsilon_{it} \qquad (5.11)$$

The average DiD estimate of the program is included in the coefficient β in the interaction of the post-program treatment variable T_{i1} and time ($t = 1...T$). Hence,

β equals DiD from the equation 5.1. The constant is denoted as α and the error term is denoted as ε. In addition to the interaction term, the variables T_{i1} and t are included distinctly to acquire the independent results for the effect of the time between the pre-treatment and post-treatment period as well as the effect of being in the treatment group compared to the control group. Combining both approaches to introduce the intuition behind equation 5.2., the following two equations in expectation form arise:

$$E(Y_1^T - Y_0^T \,|\, T_1 = 1) = (\alpha + DiD + \rho + \gamma) - (\alpha + \rho) \qquad (5.12.a)$$

$$E(Y_1^C - Y_0^C \,|\, T_1 = 0) = (\alpha + \gamma) - \alpha \qquad (5.12.b)$$

In accordance with equation 5.1., the DiD estimator can be derived from subtracting 5.3.b from 5.3.a. Thereby, DiD can just be interpreted as an unbiased estimator if the selection bias is essentially additive and time invariant. Going further, calculating a policy impact through a simple pre- versus post-treatment design on treatment group members would be DiD + γ, which would consequentially lead to a bias in form of γ^2. The inclusion of a control group ensures that other influences are not affecting the outcome for the participants. Another approach may include a comparison of post-treatment outcomes for the treatment and the control group members. Here, the result would be DiD + ρ, leading to a bias of ρ The separation of systematic bias from the treatment would not be possible. To interpret the correctly, the following two assumptions must hold.

(1) The specification of the equation for the DiD estimator must be correct.
(2) The error term is uncorrelated with other variables in the equation following

      a. $Cov(\varepsilon_{it}, T_{i1}) = 0$
      b. $Cov(\varepsilon_{it}, t_{i1}) = 0$
      c. $Cov(\varepsilon_{it}, T_{i1} t) = 0$

The last assumption, also known as the parallel-trend assumption is of necessity here. It states that unobserved characteristics influencing the program participation to do change over time with the treatment status. This description is based on Khandker et al. (2010), however also described and used in various other studies on impact evaluation (Card & Krueger, 1994; Hirano, Imbens, & Ridder, 2003; Ravallion, Galasso, Lazo, & Philipp, 2005).

5.4.2.3 Application

PSM will be applied in the following way: mothers who are working in a company with ESCC are matched to mothers who are working in a company without ESCC. Then, differences in the working behavior can be assessed. This difference can be interpreted as the impact of ESCC on the working behavior and is called the average treatment effect.

It is important to check during the matching process whether the common support assumption is fulfilled. In order to comply there needs to be sufficient overlap in the characteristics of treated and untreated units in form of the propensity score to find adequate matches (Khandker et al., 2010). The following figure contains the propensity scores of the treatment and control groups when ESCC is available for mothers.

Figure 5-3: Propensity scores for both groups when ESCC is available for mothers
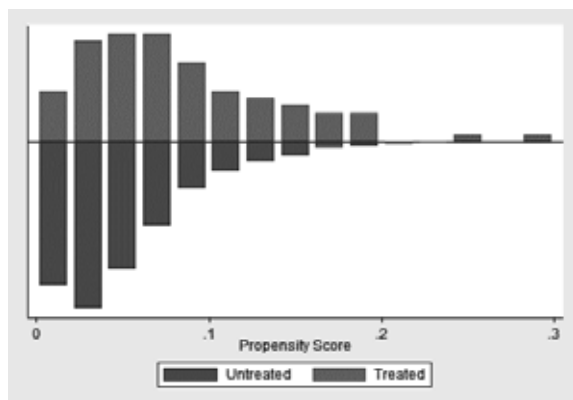
Source: FiDv4.0, own calculations and design

Since the propensity scores of both groups are clearly left biased, the common support assumption may be regarded as fulfilled. As already mentioned, PSM will be applied in combination with DiD as well. Both methods have limitations – the assumptions of time-invariant unobserved heterogeneity with regard to the DiD estimator, and the assumption of only observable characteristics concerning PSM. Therefore, PSM is not only used as the only method, but also in combination with DiD (Khandker et al., 2010). Using the DiD estimator also allows the inclusion of independent variables in the analysis, which is not suitable in PSM calculations.

For DiD estimations, it is important to distinguish between a pre-treatment and a post-treatment period. Hence, it must be possible to separate clearly the two kinds of periods. DiD estimators are often used if there is a naturally defined pre- and post-treatment time like the introduction of a policy. Since the dataset does not allow identifying when ESCC is introduced in a company for a mother, it will be approached in a different way: The dataset has information on job changes, meaning that each observation in the dataset needs to report if he or she is changing the employer. Hence, it can be identified whether a mother benefited from ESCC since the new employer offers it, but the former employer did not. The identification of a pre- and post-treatment period due to a job change has frequently been used (Lauber & Storck, 2016). This assumption implies that three different time periods could be

observed – from first year to the second year, from the second year to the third year and from the third year to the fourth year. Thereby, it will be checked for every time period whether or not the person has changed jobs. Diminishing the likelihood of mistaking such effects as ESCC based while depending on other factors (for instance higher salary), several control variables are included in the regression model.

Khandker et al (2010) propose the use of fixed effects (FE) next to OLS regressions to control for unobservable factors in panel data analysis. A short description of the methodological approach of FE is included in the Appendix. The dependent variable is working hours. The different ways of operationalization are provided in the following section.

Several authors (for instance Butts, Casper and Yang (2013), Grover and Crooker (1995)) showed that the positive effect of the providing family-friendly HRM can be on the same level, independent of whether the employee actually used it or was just aware of the possibility of using it. It seems possible that part of the effect is driven by the offer, because as long as the offer is continual it increases future possibilities of using it. The following estimates thus assume the availability and the usage of ESCC.

Using the DiD-estimator implies that an appropriate control group must be found. The dataset allows several approaches, which are displayed in the following figure.

Figure 5-4: Overview of sensitivity tests on the direct impact of ESCC

1. specification				2. specification		
	Pre-treatment phase	Post-treatment phase			Pre-treatment phase	Post-treatment phase
Treatment group	No ESCC	ESCC available	Treatment group	No ESCC	Usage of ESCC
Control group	No ESCC	No ESCC	Control group	No ESCC	No ESCC

1. sensitivity check				2. sensitivity check		
	Pre-treatment phase	Post-treatment phase			Pre-treatment phase	Post-treatment phase
Treatment group	No ESCC	ESCC available	Treatment group	No ESCC	ESCC usage
Control group	ESCC available	ESCC available	Control group	ESCC usage	ESCC usage

3. sensitivity check				4. sensitivity check		
	Pre-treatment phase	Post-treatment phase			Pre-treatment phase	Post-treatment phase
Treatment group	ESCC available	ESCC usage	Treatment group	ESCC available	ESCC usage
Control group	ESCC available	ESCC available	Control group	ESCC usage	ESCC usage

Source: Own design based on Khander et all (2012)

The figures reveal the differences between the first and second specification of the regression model to estimate the impact difference with regard to the treatment group, but have the same control group. The first treatment group is marked by the availability of ESCC in the post-treatment period, while the second treatment group actually uses ESCC in the same period. In dependence

on the first specification, the first sensitivity check inhabits a different control group. Here, ESCC is available in both pre- and post-periods. Hence, this sensitivity test addresses whether the mere introduction of ESCC makes a different. The second sensitivity test focuses on the usage of ESCC, as the members of the treatment group do not experience ESCC in the pre-treatment period, but use it in the post-treatment period. The control group members use ESCC in both periods. In comparison to the first sensitivity check, it interrogates whether usage or availability lead to the same results. With regard to the third sensitivity test, the treatment group changes from the availability of ESCC to the use of ESCC while the control group experiences the availability in both periods. The fourth specification is characterized by the change from the availability to the usage of ESCC for the treatment group. The control group uses ESCC in both cases. The different specifications are used for robustness purposes of the main specification.

5.5 Operationalization of variables

This section describes the operationalization of the variables. Firstly, the operationalization of the dependent variables will be pursued, followed by the focus variable, ESCC. Finally, several independent variables, differentiated between hypothesis-related variables and further control variables, will be examined.

Concerning the dependent variable, the working behavior is analyzed for two periods over the life cycle of a mother, which are distinctively handled in the context of this analysis. The theoretical framework has highlighted that employers want to increase the working effort of employees through efficiency wages. The working effort of mothers can be operationalized in different ways. Firstly, the decision to return to work after childbirth is investigated. This part includes both when and to which extend (working volume) a woman returns to work after childbirth. FiD allows observing the working behavior of mothers on a monthly basis. Also, the date of birth of children is exactly given. With regard to the working volume on a monthly basis, the data set allows the differentiation between full-time, part-time, and marginal employment. Within the observed time span, the max amount of salary for marginal employment is 400 Euro per month. A specific distinction between full-time and part-time employment in dependence on the working hours is not included in the documentation of the data set (Schröder et al., 2013).[15] Secondly, the working volume of mothers with young children is analyzed. Thereby, the FiD allows two different kinds of measurement. One variable contains the agreed working hours per week. The second variable measures the average amount of hours devoted to work per day. This measurement includes, next to the agreed working time, the commute, preparation for

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15 In an email conversation, the contact person of the DIW for the FiD agreed that the demarcation of working hours on a monthly basis is not possible.

work, and overtime. Individuals who are working part-time (for instance two out of five days) are asked for their average time per day. The analysis was pursued for both variables.

With regard to the operationalization of ESCC, the description of various kinds of ESCC (see section 2.3.3 "The state of ESCC), the literature review (see section 3.3.1. "ESCC") and the theoretical framework (see section 4.2. "ESCC conceptualized as an efficiency wage") revealed that the distinct kinds of ESCC will be aggregated in the context of the prevailing analysis. Especially the theoretical framework revealed that the difference between monetary and non-monetary efficiency wages is relevant. Here, rather different kinds of non-monetary efficiency wages are analyzed. More specifically, the FiD allows the differentiation between

- On-site childcare
- Operator of renting childcare spots in local childcare facilities
- Financial support (for instance in form of vouchers).

With regard to the hypothesis-related variables and further controls, the following table contains the specific information on the operationalization.

Table 5-1: Operationalization of variables

Variable	Scale	Comments	Based on
Hypothesis-related variables			
Human capital			
No or low qualification	Binary	Reference: Tertiary qualification	Becker (2009), Schober (2013)
Vocational qualification			Becker (2009), Schober (2013)
Firm-specific human capital	Continuous		Lepak & Snell (1999), Becker (2009), Fulmer & Ployhart (2013)
Company policy and administration			
Usage of family-friendly human resource policies	Continuous		Bloom, Kretschmer, & van Reenen (2011)
Economic sectors: Public sector Manufacturing sector Knowledge-intensive sector Service sector	Binary	Reference category: health sector	Frey, Homberg & Osterloh (2013), Perry (1997)

Variable	Scale	Comments	Based on
Relationship with supervisor			
Perceived supervisory support	Binary		Eisenberger et al (2002)
Work conditions			
Flexible working arrangements	Binary		Herzberg, Mausner, & Snyderman (1959)
Factors in personal life			
Irregular working time	Binary		Silim & Stirling (2014)
Satisfaction with childcare	Continuous		Schober (2013)
Perception of stress at work	Continuous		Herzberg, Mausner, & Snyderman (1959)
Status			
Gaining reputation	Continuous		Herzberg, Mausner, & Snyderman (1959)
Salary			
Satisfaction with salary	Continuous		Herzberg, Mausner, & Snyderman (1959)
Further controls			
Age	Continuous		Schober (2013), Stuth, Hennig & Allmendinger (2009)
Marital status	Binary	1=married	
Personal income	Continuous	In Euro	
Household income		In Euro	
Partner`s income			
East-West	Binary	1=West	
Migration background	Binary	1=migration background	
Age of youngest child	Binary	1=below 3 years	
Amount of children	Continuous		

The operationalization was pursued in accordance with the previous literature, as it can be extracted from the table. Human capital is operationalized in form of the formal qualification of the observation. Thereby, it is differentiated between no or low education, which implies an inadequate qualification or general elementary

school, vocational qualification, and tertiary education. The latter one is the reference category since all variables are recorded as dummy variables. Concerning the variables on firm-specific human capital, previous literature has revealed that an indicator would be advisable in the context of this analysis. The indicator inhabits the following variables working time at the employer in years, the degree of autonomy in daily work and whether the individual inhabits a high position. A higher job position tends to be occupied by qualified professional or managerial staff, a high-level/executive, civil servant, or a foreman.

Equally weighted and additive indicators showed robust results over different specifications. The final models include an additive indicator since it reveals greater power. The usage of family-friendly human resource policies is recoded in a continuous variable indicating how many policies were used by the individuals. The list of policies includes institutions to keep contact during maternity leave, consultancy in general matters regarding childcare and the set-up of a women's officer. Thereby, it is important to highlight that it is only included in tabulations when a mother is actually using it and not if it is merely available. Pre-tests have revealed that the same variable on the availability did never reveal significant results, while the usage does. Concerning the economic sectors, the list of sectors after NACE88 has been aggregated to the five categories public sector, manufacturing sector, knowledge-intensive sector, service sector and education and health sector. To be able to interpret them in a meaningful way, they have been recoded as dummies with education and health as the reference category. The decision of aggregating the sectors to these five is derived from the theoretical framework. The variables perceived as organizational support, perception of stress at work, the importance of gaining a reputation, and satisfaction with salary are subjective assessments to be ranked by the respondent. They are scaled from zero to ten with ten as the highest value. Perceived organization support focuses here on the direct support by the supervisor. The perception of satisfaction with childcare shall reflect the general attitude towards their childcare situation. While the dataset included more distinct variables on this topic (for instance satisfaction with quality in terms of children-teacher ratio), missing values did not support the decision of including them in the final model. Both variables flexible working arrangement and irregular working time have been recoded as dummies. Flexible working arrangements are marked by either perceiving a flexible working place or time. Irregular working time refers to either weekend work or shift work. Concerning the control variables, the age is included as a log. The marital status is aggregated of being either married or not married and may include widowed, single, or divorced individuals. The variables on income are included as logs, whereby pretests revealed whether the household or the partner's income shall be included next to the personal income. The variables on living in East or West Germany, or individuals with a migration background may reflect cultural attitudes. Concerning variables on further children, the age of the youngest child is included as a dummy for having a child being three years or younger. The number of children is included as a continuous variable.

6. Results: Describing the Changes due to ESCC

The subsequent chapter describes the results divided into three main sections. Firstly, it addresses the length of absence and extend of returning to work in relation to ESCC. Secondly, the working volume of mothers with young children is investigated. The first section within each part presents predominantly descriptive statistics with a focus on differences between mothers with and mothers without access to ESCC. Afterwards, the impact evaluation shows whether there exists a causal impact between the behavior of mothers and the provision of ESCC.

6.1 Effects of ESCC on return-to-job after giving birth

6.1.1 Descriptive statistics

The following section provides an overview of the situation of the mothers at the time of giving birth. During the complete time period, 1578 mothers gave birth. Around four percent of the mothers were working in a company with ESCC just before giving birth.

The socio-demographic characteristics of the sample are as follows: 74 percent of the mothers without ESCC are married. The treatment group has here a corresponding value of 77 percent. The mean age is 31 years of age for the control group and 33 years for the treatment group. The individual income of the treatment group is with around EUR 1.500 net per month slightly higher compared to the control group. The household income of the treatment group is around EUR 3700 net per month, which is remarkably higher compared to the control group with EUR 2800 net per month.

Concerning the cultural and ethical background, again, similar tendencies can be observed: While 82 percent of the members of the treatment group live in former West Germany, 86 percent of the control group participants are from this area. The majority of the treatment group's members (95 percent) have a German background and 87 percent of the control group members have this nationality.

With regard to hypothesis related variables, the following observations can be made: The qualification is higher when ESCC is provided. In the treatment group, 49 percent have a tertiary education and 51 percent have a vocational education. In comparison, the control group inhabits 13 percent with no or a low education, 64 percent with a vocational education and 23 percent with a tertiary education.

The indicator of company-specific human capital shows the following distribution within distinct variables: The individuals are employed on average for 3.5 years at the same employer in the treatment group, which is twice as high as compared to the control group. The treatment group members perceive generally higher degrees of autonomy compared to the control group individuals. The third variable, position in the company, reveals that 83 percent of the treatment group members have

a position as foreman, team leader, executive, or highly qualified civil servant, as managerial, or qualified professional staff. The same number is around 17 percent for the control group.

With regard to the distribution over the economic sectors, the following table reveals that in both group most of the mothers are working in the manufacturing sector. However, the amount is in the control group nearly twice as high as in the treatment group.

Table 6-1: Distribution of observations in economic sectors before giving birth

	Public sector	Health sector	Manufacturing sector	Knowledge-intensive sector	Service sector
Treatment group	20%	17%	43%	10%	10%
Control group	2 %	4%	85%	4%	5%

Source: FiDv4.0, own calculation

Over 98 percent of the control group members do not use any other family-friendly HR policies. In comparison, above 15 percent of the mothers in the treatment group use at least one kind of family-friendly HR policy. Similarly, 90 percent of the control group members do not perceive their direct supervisor as supportive, while 75 percent of the treatment group members do. However, the overwhelming majority of the control group (91 percent) do not have flexible working arrangements. This proportion is nearly even in the treatment group. Concerning irregular working time (for instance in the night or at the weekend), around 80 percent of the control group members have no irregular working time compared to 34 percent in the treatment group.

The following variables are subjective assessments of the mothers. Starting with the perceived time pressure, both groups have a value of approximately three out of ten. Similarly, the results on gaining reputation are with four out of ten in both groups relatively equal. The satisfaction with the salary reveals different results: Here, the treatment groups shows with a value of seven out of ten a far higher satisfaction than the control group with four points out of 10 points.

In sum, the descriptive statistics hint that the mothers working in a company with ESCC have a higher education and enjoy a more family-friendly work environment compared to the control group. The differences in the personal and working environment between both groups illustrate the importance of applying impact evaluation methods to identify the real impact of ESCC on the work behavior. Otherwise, it could be assumed that these third factors bias the relationship.

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6.1.2 Impact evaluation: Effects of ESCC on time of return-to-job after giving birth

The Kaplan-Meier survival curve shows the survival function, which captures the probability that the person will survive beyond a specified time. In this context, survival refers to the time of not working and it ends for a person when she starts working again. The following graph shows the survival function for the survival probability of returning to work in dependence on the provision of ESCC at the time of birth.

Figure 6-1: Kaplan-Meier survival estimates when ESCC is available at time of giving birth
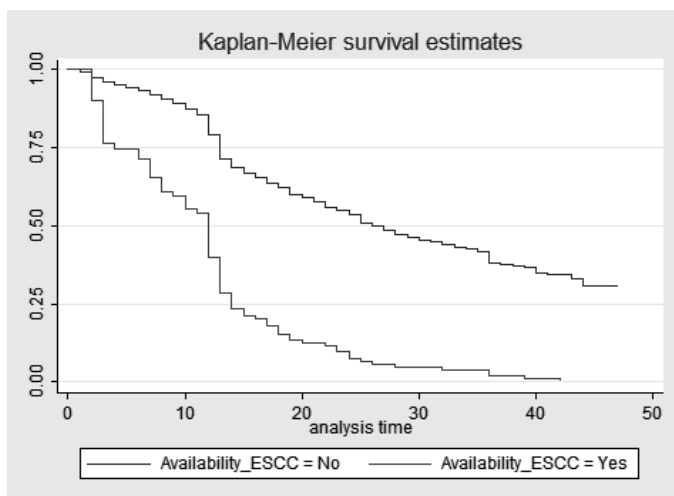
The lighter grey line in this graph shows the survival function of mothers whose employer provides ESCC. The lighter grey line is throughout the time period below the darker grew line. The survival of not being employed ends earlier for women in the treatment group. Hence, mothers, who gave birth while being employed in a company with ESCC, return earlier to work compared to mothers, who gave birth while working in a company without ESCC.

Around three months after childbirth, around 25 percent of mothers from the treatment group are employed while four percent of the control group are employed. A steep increase in employment rates can be observed after twelve months for both groups, which might be due to the end of the parent's money, which has a reference period of twelve months. The steep increase after 14 months might be explained due to the extended reference period for single mothers and for mothers, whose partner is also having two months off. Around 24 months after childbirth, nearly 75 percent of the treatment group mothers and 47 percent of the control group mothers are

employed. It should be noted that the observed employability does not address the volume of working, but 'if' a mother is working. Furthermore, it is important to state that these statistics are descriptive, hence they do not imply causality.

The subsequent table contains the coefficient estimations for the decision to work after childbirth. Please note that the dependent variables are a combination of the decision to return to work after childbirth and the duration of the survival analysis. The coefficients are time-unrelated and include both the time of the return-to-work as well as the decision to do so itself. The separation of both effects combined in the coefficient is not possible (Cleves et al., 2016). Variables without significant coefficients are neglected in the subsequent description of the results.

Table 6-2: Regression results on duration and return-to-job after childbirth

	Return-to-job after childbirth	
	Coefficient	Standard error
Availability ESCC	2.224753*	.9669382
Hypothesis-related variables		
Firm-specific human capital	-.0092869	.0361705
Interaction firm-specific HC × ESCC	-.1196753	.086154
Reference: Health and education sector		
Public sector	.2416207	.1847729
Interaction public sector × ESCC	-.113151	.455961
Knowledge-intensive sector	.2613164	.1350024
Interaction knowledge-intensive sector × ESCC	-.0438698	.303368
Service sector	.2363231	.1314
Interaction service sector × ESCC	-.385352	.3082223
Perceived supervisory support	.3260301***	.0976912
Interaction perceived supervisory support × ESCC	-.1567858	.2370771
Family-friendly HR policies	.3128591**	.0980556
Interaction family-friendly HR policies × ESCC	-.1635736	.2331002
Flexible working arrangement	.3845081***	.1146492
Interaction flexible working arrangement × ESCC	.0801794	.2438252
Gaining reputation	-.2134184**	.0698463
Interaction gaining reputation × ESCC	.2306766	.1480373
Irregular working time	1.179586***	.147979

	Return-to-job after childbirth	
	Coefficient	Standard error
Interaction irregular working time × ESCC	-1.32901***	.2419296
Satisfaction with salary	.0664978***	.0145993
Interaction satisfaction with salary × ESCC	-.0891363	.0646323
Further controls		
Individual income (log)	.082719	.0734169
Household income (log)	.1243615	.0943216
East-West (1=West)	-.2380389**	.0913489
Migration (1=migration background)	.4004257**	.1369955
No. of subjects	24205	
No. of failures	630	
Time at risk	1337	
Wald chi2(25)	916.44	
Prob > chi2	0.0000	

Significance tests: * p<0.05, ** p<0.01, *** p<0.001

Source: Fidv4.0, own calculation

The availability of ESCC has a positive and significant impact on the decision to return back to work after childbirth. While the coefficient of the firm-specific human capital and its interaction with the availability of ESCC appears to have negative elements it should not be overrated due to its insignificance and the size of the standard error.

The three economic sectors included in this model all show positive, but insignificant coefficients, while the interaction terms are all negative and insignificant. It is noteworthy that all economic sector variables have the same sign in dependence on their reference category, the health and education sector.

It seems that perceived organizational support by the direct supervisor seems to be highly significant and positively related to the time and decision to return to work. However, the interaction with ESCC is not significant and negative. The impact of perceived supervisory support is not dependent on the provision of ESCC.

The same interpretation holds true for the usage of family-friendly HR policies. Flexible working arrangement show similar results, however with a positive interaction term.

The hypothesis on gaining reputation cannot be supported here: An increase in the importance of gaining reputation from work is associated with a decrease in the

likelihood of returning to work. The corresponding interaction term is insignificant. This result is contradicting to the theoretical implications.

Concerning the irregular working time, the following interpretation can be made: While irregular working time seems to be positively and highly significantly related to the return to work, the interaction with ESCC reveals the opposite. Hence, this hypothesis cannot be supported, rather the opposite seems to hold true.

Furthermore, it can be observed, the higher the individuals are satisfied with their salary, the more likely they are returning earlier back to work. The result is highly significant, while the associated interaction terms is not significant.

With regard to the control variables, both variables in regards to income are insignificant and positive. Mothers living in former West Germany are less likely to return to work than mothers residing in former East Germany. Mothers with a background from non-German countries are more likely to return to work. This results is contradicting to previous literature (Wagner, 2012), but might be explained due to the aggregated usage of other nationalities. A distinct consideration of the national background would probably lead to some positive and some negative influences.

6.1.3 Impact evaluation: Effects of ESCC on extent of return-to-job after giving birth

While the previous analysis has focused on the difference between working and not working, this part will be dedicated to the kind of return to work after childbirth. Thereby, it will be differentiated between marginal, part-time, and full-time employment. Hence, non-working mothers are neglected in this analysis. Introducing this topic, the following figure contains the working status after childbirth differentiated between ESCC available and no ESCC available at the time of giving birth.

Table 6-3: Working status in months after childbirth with availability of ESCC
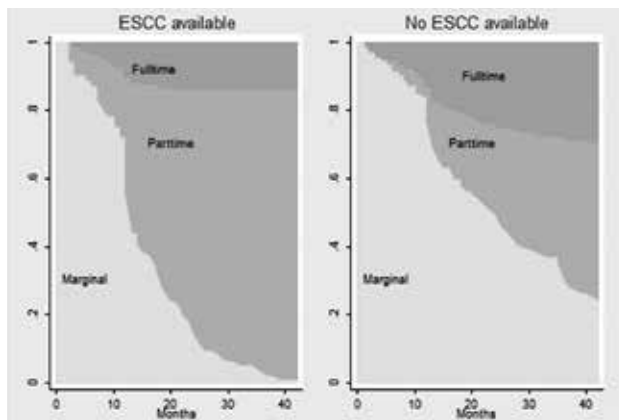
Source: Fidv4.0, own calculations

With regard to the treatment group, the figure on the left reveals that around three months after childbirth roughly one percent of mothers is again working full-time, three percent are working part-time and 96 percent are marginally employed. The amount of marginal employed mother's decreases as time progresses. Simultaneously, the amount of mothers working part-time and full-time increases constantly, however the increase in part-time work is on a higher pace. Approximately twelve months after childbirth, the distribution is as follows: Around five percent are working full-time, twelve percent are working part-time, and 75 percent are marginally employed. With time, full-time employment levels out at about twelve percent, part-time employment increases consistently, while marginal employment decreases simultaneously.

In contrast, the control group perceives a slightly different development. Here, approximately 97 percent of the mothers are marginal employed, one percent part-time and two percent full-time three months after giving birth. As well as for the treatment group, the high share of marginal employed mother's declines over time, however, compared to the treatment group, on another level: the proportion of part-time employment increases to a substantially smaller degree compared to the treatment group. Furthermore, the share of full-time employed individuals increases on a higher level compared to the treatment group, but starts at a later point in time. In summary, it seems that the availability of ESCC promotes part-time employment on costs of marginal employment.

The next table contains the results of CRM. It contains the three types of employment when returning to work. Thereby, they are regarded as competing events since just one of them can happen first.

Starting with marginal employment, the main variable of interest, the availability of ESCC, is not significant. Nearly all hypothesis-related predictors do not seem to have significant influence on the decision to work in a marginal employment relationship. One exception concerns flexible working arrangements: women without flexible working arrangements are less likely to have a minijob after childbirth compared to women with flexible working arrangements. The interaction term is not significant and positive.

However, the control variables seem to be influential here: a higher age is associated with a decrease in the likelihood of pursuing marginal employment. A lower income is significantly related to the likelihood of working in a minijob after giving birth. Furthermore, there is a higher possibility of having a marginal employment status when a mother is born in former West Germany.

Table 6-4: Regression results of CRM

	Marginal		**Part-time**		**Full-time**	
	Coef.	SE	Coef.	SE	Coef.	SE
Availability ESCC	1.122566	2.303168	2.531345***	0.8676275	-2.902533	2.959048
Hypothesis-related variables						
Vocational education	.2969314	.1771227	-0.1829985	0.1160796	0.0805616	0.1928953
Int. vocational education × ESCC	.2408489	.92329	-0.085889	0.3017797	1.552327***	0.4139605
Firm-specific human capital	.0843173	.0449306			0.0888837	0.0643119
Int. firm-specific HC × ESCC	-.130665	.2498433			-0.0411362	0.1195315
Ref: Health and education sector						
Public sector					-0.4864494	0.3428916
Int. public sector × ESCC					0.7970568	0.5954877
Service sector	.233885	.1864865				
Int. service sector × ESCC	.6449344	1.442232				
Manufacturing sector			0.34263***	0.124258	0.6080085**	0.224439
Int. manufacturing sector × ESCC			0.1013603*	0.3195211	0.4260389	0.4638478
Knowledge-intensive sector					-0.0605918	0.3058878
Int. know.-int. sector × ESCC					-0.6672146	0.6944137
Flexible working arrangement	-.6374887**	.2321858	0.0732709	0.1419156	-0.0375666	0.2107576
Int. FWA × ESCC	.6680565	1.205131	-0.1061513	0.3089369	0.7786218	0.4244581
Irregular working time	.1258843	.1544633				
Int. irregular working time × ESCC	.7428665	.861094				
Satisfaction with salary	.0410413	.0250992	0.04905**	0.0197234		
Int. satisfaction with salary × ESCC	-.2824127	.1751157	0.217513***	0.0665866		
Perceived supervisory support			0.3651916***	0.1236059	0.0677493	0.214961

	Marginal		Part-time		Full-time	
	Coef.	SE	Coef.	SE	Coef.	SE
Int. perceived supervisory support × ESCC			-0.122614	0.3750299	-0.1537452	0.4678821
Family-friendly HR policies			0.2549*	0.1318618	.3220236*	0.1484222
Int. HR policies × ESCC			-0.3593417	0.3615874	-0.9720439	0.5374668
Perceived time pressure			0.0390809	0.0628464	-0.0150148	0.0930854
Int. time pressure × ESCC			-0.2099817	0.1924228	0.1389027	0.2800544
Gaining reputation					0.158839	0.1428014
Int. gaining reputation × ESCC					0.2524642	0.3206761
Further controls						
Age (log)	-1.095363*	.4698345	0.569572*	0.323999		
Individual income (log)	-1.1061***	.1066218	0.18370**	0.0781869	1.591616***	0.221548
Household income (log)	-.1111028	.1795396	0.0207185	0.1243487		
Income partner (log)					-.3057794*	0.1462005
East-West (1=West)	.6601863***	.1988081			-.904342***	0.1671433
Marital status (1=married)					-0.2777877	0.1650014
Migration (1=migration background)			0.4618273**	0.2213806		
No. of observations	20748		17624		20136	
No. of subjects	461		294		481	
No. failed	238		425		186	
Wald chi2	(17) 279.84		(19) 109.54		(27) 259.06	
Prob > chi2	0.000		0.000		0.000	

Significance tests: * p<0.05, ** p<0.01, *** p<0.001, empty cells: not included due to results of pretests

Source: FiDv4.0

Continuing with part-time employment, the availability of ESCC has a positive and significant influence on the decision to work part-time after childbirth. Having a vocational education and the associated interaction term with ESCC does not reveal significant results. Working in the manufacturing sector and the associated interaction have a positive and significant influence in reference to working in the health and education sector. Having flexible working arrangements as well as the subsequent interaction with ESCC do not reveal significant results either. With regard to salary satisfaction, a positive and significant influence can be found both for the variable itself as well as for the depended interaction with ESCC. Furthermore, a

positive, significant effect can be identified for perceived supervisory support as well as for the usage of HR policies. The interaction terms with ESCC is not significant and negative for both variables.

Regarding the other control variables, there are three significant variables. Firstly, it seems that a higher age is related to working part-time after childbirth. Secondly, the individual income is positively associated with the likelihood of working part-time. Thirdly, having a non-German background exerts a positive influence on part-time employment.

With regard to full-time employment, the main variable of interest, availability of ESCC, does not seem to have a significant influence on the decision to work in full-time employment. The coefficient reveals a negative sign however, with an even larger standard error compared to the coefficient itself. This result should be approached very carefully. While vocational education itself does not inhabit a significant influence, the associated interaction term is positively significant. Similar to the part-time employment status, it seems that employees in the manufacturing sector have a higher probability of working full-time in reference to the health and education sector. Contrary to the analysis on part-time analysis, the subsequent interaction term is here not significant. Likewise, the usage of HR policies seems to be positively and significantly related to the likelihood of returning to work in full-time modus. Further hypothesis-related variables are not significant.

Again, the individual control variables seem to be relevant: a higher individual income is significantly related to a return in full-time employment after childbirth. In relation to this, the income of the partner inhabits a significant coefficient as well, however in the opposite direction.

6.1.4 Interim conclusion

Before the working behavior with young children will be approached in the next section, a short conclusion will be drawn. The results of the questions revealed, that it seems that the provision of ESCC for pregnant employees has a small positive but significant impact on the decision to return to work. While the interactions of the hypothesis-related variables overwhelmingly did not have a significant impact, the variables itself had. It seems that the working environment including the perceived supervisory support, usage of HR policies, flexible working arrangements, irregular working time or the satisfaction with the salary are explanatory for the return to work. Having a closer look at the extent of returning to work, just the model on part-time employment seems to be significant. Likewise, it seems that the working environment itself seems to be more relevant than the interactions with ESCC.

6.2 Effects of ESCC on working volume of mothers with young children

6.2.1 Descriptive statistics

This section explores the sample and will differentiate between mothers whose employer offers ESCC, mothers who use it, and mothers who do not have access to it at all. The first group is included in the latter analysis, since several authors investigated that even the provision of family-friendly HRM can affect the working behavior of employees. Furthermore, it is differentiated between mothers, who are directly affected by ESCC (for instance if their employer offers it) and mothers, who indirectly benefit from it (for instance if the employer of their partner offers it).

With regard to the direct effect, around 15 percent of the sample have an employer who is offering ESCC in the first year. This number raises continuously to 16 percent in the following year, 17 percent in the third year and 19 percent in the fourth year of the observed time period. On the contrary, the usage of ESCC is approximately consistent over the years. While five percent of the observed use ESCC in the first two years, six percent use it in the third year. In the fourth year, again around five percent of the sample group make use of ESCC.

Around seven percent of the mothers have a partner whose employer is offering ESCC in the first year. This amount increases constantly to eight percent in the second year, nine percent in the third year and eleven percent in the fourth year. The amount is substantially smaller compared to the directly affected mothers. The observation is also valid for the usage of ESCC, as the percentage of mothers who have a partner using ESCC, which stays between two and three percent.

A closer description of the sample will be provided in the next lines. Thereby, the focus is on mothers who personally usage ESCC compared to mothers who do not have access to ESCC at all, since this is the main specification. Starting with the hypothesis-related variables, around two percent of the mothers using ESCC have no or a low education, 62 percent have a vocational education, and 37 percent have a tertiary education. With regard to the mothers without ESCC, around five percent have no education, 73 percent have a vocational education, and 22 percent have a tertiary education. Concerning the indicator on firm-specific human capital, the average number of years working for a company is at around six years for both groups. The treatment group members have a generally lower degree of autonomy compared to the control group members. Furthermore, 42 percent of the control group members inhabit a high position in the company while 20 percent of the treatment group mothers have it. Hence, a clear trend between the three indicators cannot be observed here.

Concerning the usage of others kinds of HR policies, around six percent of the control group members use at least one kind of HR policy while 15 percent of the treatment group members use at least one policy.

The following table shows the distribution across the economic sectors:

Table 6-5: Distribution of mothers working in economic sectors when using ESCC

	Public sector	Health sector	Manufacturing sector	Knowledge-intensive sector	Service sector
Treatment group	23%	27%	31%	14%	6%
Control group	14%	23%	32%	12%	20%

Source: FiDv4.0, own calculations

The table reveals that most members of the treatment group work in the manufacturing sector. The service sector is marked by the smallest amount of mothers working there. With regard to the control group, the manufacturing sector is likewise the greatest one in the distribution of this sample while the sector with the least amount of mothers is the knowledge-intensive sector.

Twenty-six percent of the treatment group members regard their direct supervisor as directly supportive while 44 percent of the control group members do. 57 percent of the treatment group members have flexible working arrangements while 70 percent of the control group members have it. Around 60 percent of the treatment group members have irregular working time while 27 percent of the control group members have it.

With regard to the variables on subjective perception, there are generally no substantial differences between the two groups: Concerning time pressure, the average value of the treatment group is four out of ten, while the average value of the control group is three out of ten. The importance of gaining a reputation from work accounts in both groups for three out of ten points. The satisfaction with salary levels is, in both groups, around six points.

Going on to the individual characteristics, 38 percent of the mothers using ESCC and 49 percent of the mothers without any access to ESCC are not married. The average age in the treatment group is 36 years and in the control group 38 years. The mean income is slightly higher in the treatment group with EUR 1,300 net per month compared to the control group with EUR 1,100. This distribution is also reflected in the household income. The distribution of living in former East or West Germany is approximately the same between both groups. 23 percent of the treatment group members and 17 percent of the control group members live in former East Germany. Around three percent of the treatment group and five percent of the control group members have a non-German background.

It appears there are no substantial differences between the human capital related variables and the subjective assessment variables between both groups. However, there seem to be differences regarding the working environment variables. It seems that the control group is marked by a more flexible and supportive working environment.

6.2.2 Direct impact on the mother

This section provides the results of the impact evaluation of ESCC on work behavior when the mother is directly affected. Thereby, firstly the results are presented focusing on the availability of ESCC and secondly on the usage of ESCC. In both cases, the control group consists of mothers whose employer does not offer it at all, meaning in both pre- and post-treatment period.

The following table includes the overview of the various estimations when ESCC is available to the mother.

Table 6-6: Estimations on working volume when ESCC is directly available for mothers

	Work hours/week			Time devoted to work/day		
	Coefficient/ ATE	R. SE	R-Square	Coefficient/ ATE	R. SE	R-Square
Propensity Score Matching						
Radius matching	1.68	1.31		1.00***	0.29	
Kernel matching	0.91	1.01		0.8***	0.29	
Difference-in-difference estimator & propensity score matching						
OLS regression	0.21	1.12	0.58	0.33	0.27	0.48
Fixed effects regression	-0.33	0.67	0.43	0.25	0.22	0.27

Significance tests: * t>1.65, ** t>1.96, *** t>2.58

Source: FiDv4.0, own calculations

Concerning the work hours per week, the table shows that there is a positive effect of the availability of ESCC on the work hours based on two distinct matching procedures. The results are however not significant and marked by high standard errors. The combinations with the DiD estimations do not reveal consist results and have large standard errors in relation to the size of the coefficient. Regarding the time devoted to work per day, all four estimations have a positive tendency. The PSM estimations are both highly significant and have small standard errors. The estimations of DiD estimations are however not significant and have large standard error.

Summing up, the regression results with the independent variables are not included and discussed here for both types of the dependent variable due to insignificance of the dependent variable in the DiD estimator. However, it should be highlighted that the results go for most of the specifications in the same direction.

The next table contains the results of the estimations for the usage of ESCC.

Table 6-7: Overview of estimations on working volume with direct effect of usage ESCC

	Work hours/week			Time devoted to work/day		
	Coefficient/ ATE	R. SE	R-Square	Coefficient/ ATE	R. SE	R-Square
Propensity Score Matching						
Radius matching	2.42*	1.44		0.48*	0.31	
Kernel matching	1.52	1.59		0.35	0.35	
Difference-in-difference estimator & propensity score matching						
OLS regression	1.37	1.49	0.60	0.45*	0.37	0.51
Fixed effects regression	1.71*	0.95	0.47	0.54*	0.30	0.3

Notes: Significance tests: * t>1.65, ** t>1.96, *** t>2.58

Source: FiDv4.0, own calculations

Starting with the work hours per week, all four estimations have positive estimations ranging from 1.37 hours to 2.42 hours with mostly smaller standard errors and partly significantly results. The same observation can be made for the time devoted to work per day. Here, the results range from 0.35 hours to 0.54 hours with likewise smaller standard errors and overwhelmingly significantly results. The generally smaller size of the coefficients can be explained due to the difference in the measurement scales of the dependent variable (day vs week).

Since the DiD models showed significant results, the following table contains the complete models with the DiD estimator in combination with PSM. The interaction term contains the results for the dependent variable and consists of a dummy variable indicating the pre-and post-treatment period and a dummy variable indicating the treatment and control group (Khandker et al., 2010).

Table 6-8: Regression estimations: direct effect, ESCC usage, agreed weekly working hours

	Work hours/week			
	OLS		FE	
	Coef.	Std. err.	Coef.	Std. err.
Treatment Dummy	.120612	1.17856	-.643667	1.74087
Time Dummy	.492887	.4592902	.550330	.355180
Interaction	1.37799	1.486513	1.71604*	.947961
Ref: Higher Education				
Vocational education	.557261	.4342712		
Firm-specific human capital	-.285090***	.0860855	.061717	.078422
Family-friendly HR policies	.148796	.4605505	-.390872	.417052
Ref: Health and education sector				
Public sector	-1.18764*	.5329888	-.936052	.667753
Manufacturing sector	1.60506***	.4239367	.011263	.536989
Knowledge-intensive sector	.018520	.5229856	-1.91646**	.720217
Service sector	1.25264**	.4124497	1.3850*	.621304
Flexible working arrangement	-.613865	.3922215	-.263404	.418127
Irregular working time	.531864	.3249733	.267266	.332013
Satisfaction with childcare	.059996	.0737333	-.00752	.070787
Perceived time pressure	.20037	.1652738	.424330*	.167186
Gaining reputation	.798600**	.2437624	-.110420	.212860
Satisfaction with salary	.500412***	.0744604	.070122	.072339
Further controls				
Individual income (log)	12.5087***	.3140542	8.96412***	.341801
Household income (log)	-3.85995***	.4683752	1.31660*	.643687
Marital status (1=married)	-.818314	.441662	-1.04481	.944057
Amount of children	-.26115	.2395447	-.051002	.20565
Age youngest child (1=<3)	.17108	.3570363	.359257	.466449
Constant	-29.45***	4.00927	-47.5090***	5.25227
R-squared	.6012579		.4654029	
Root MSE	7.0357670		4.181171	
N. of observations	2314		2314	

Source: FiDv4.0, own calculations

Starting with the working hours per week, the OLS estimations are not significant, while the FE model shows significance. The focus of the analysis lies on the significant FE model. Nevertheless, for the purpose of validation of the FE model, the OLS results are described as well in the subsequent paragraph.

Vocational education, which has just been included in the OLS model in dependence on the results of the pretests, does not reveal significant results. The firm-specific human capital shows negative, but significant results in the OLS model, but insignificance in the FE model. The variable on family-friendly HR policies does not reveal significant results.

The FE model has two significant variables regarding the economic sector. While the knowledge-intensive sector has a negative coefficient, the service sector shows a positive coefficient. Both variables must be interpreted in reference to the health and education sector. The health and education sector seems to inhabit a positive influence in combination with ESCC on the agreed work hours per week in reference to the knowledge-intensive sector. In contrast, the health and education sector seems to have a negative relationship to agreed working hours in combination with ESCC in reference to the service sector. The last observation can be supported in the OLS model.

Flexible working arrangement shows insignificant and negative results in both models, implying that mothers without flexible working arrangements increase their labor supply more likely due to ESCC compared to mothers with flexible working arrangements. Concerning irregular working time, the insignificant coefficient in both models contains that mothers with irregular working times increase their working behavior more likely due to ESCC. Satisfaction with childcare shows inconsistent and insignificant results in both models. Furthermore, the perceived time pressure shows consistently positive results in the FE model. This implies that an increase in the perception of time pressure is associated with a higher working volume when the mother is using ESCC. Gaining reputation and satisfaction with salary shows highly positive and significant results in the OLS model, but not in the FE model.

With regard to the control variables, a higher income can be significantly related to higher working hours when using ESCC in the FE model. This observation can be supported in the OLS model. There is also a positive and significant relationship between the household income and the working hours, however on a far smaller level in the FE model, but not in the OLS model. The other variables do not contain significant results in both models. The following table investigates the results of the same specifications, but with a different outcome variable. Here, the effect will be analyzed in the time devoted to work per day.

Concerning the working hours per day, the following observations can be made: Both OLS as well as FE models have a significant dependent variable and their results can be meaningfully compared. Again, vocational education is just included in the OLS model revealing a negative impact on working hours per day in reference to higher education. Firm-specific human capital shows inconsistent and insignificant coefficients over both models. The coefficient of family-friendly HR policies is positive in both models.

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Table 6-9: Regression estimations: direct effect, ESCC usage, actual daily working hours

	Time devoted to work/day			
	OLS		FE	
	Coef.	Std. err.	Coef.	Std. err.
Treatment Dummy	-.087125	.3050451	-.705199	.5559983
Time Dummy	-.041901	.1274912	.011452	.1134369
Interaction	.454326*	.3709065	.5332539*	.3027581
Reference: Higher Education				
Vocational education	-.145672	.1142184		
Firm-specific human capital	-.041733	.0225777	.0364916	.0250463
Family-friendly HR policies	.0399361	.1089721	.0765541	.1331973
Reference: Health and education sector				
Public sector	-.269019*	.1319852	-.596967**	.2132656
Manufacturing sector	.299957**	.1152337	.141001	.1715027
Knowledge-intensive sector	.115551	.1366254	-.337713	.2300215
Service sector	.411956***	.122606	.0971744	.1984308
Flexible working arrangement	-.157453	.0994363	-.056892	.1335407
Irregular working time	-.189480*	.0879484	-.134583	.1060377
Satisfaction with childcare	-.009102	.0202121	-.026861	.0226078
Perceived time pressure	.1256171**	.0468434	.2003546***	.0533956
Gaining reputation	.1724095**	.0663301	-.121803	.067983
Satisfaction with salary	.106688***	.0201321	-.002320	.0231037
Further controls				
Individual income (log)	2.6637***	.0795723	1.90349***	.1091639
Household income (log)	-.85294***	.1287372	.4009525	.2055797
Marital status (1=married)	-.331129**	.1181217	-.2497372	.3015112
Amount of children	-.038265	.0658054	.0527641	.0656801
Age youngest child (1=<3)	.075723	.096245	.0825335	.1489738
Constant	-5.2183***	1.045112	-10.2559***	1,677,462
R-squared	.5060269		.2977038	
Root MSE	1.913879		1.335374	
N. of observations	2314		2314	

Source: FiDv4.0, own calculations

Concerning the economic sectors, several consistencies between both models can be observed. Regarding the public sector, both estimations of the OLS and FE are significant and negative. The manufacturing sector shows a positive coefficient in the OLS model, meaning that it is positive compared to the health and education sector. Mothers working in the service sector reveal a positive and significant effect on the time devoted to work per day in reference to the health and education sector in the same model. This effect can also be found in the FE model, but it is not significant here. However, the direction of the coefficients is significant across both models of working hours per week and time devoted to work.

Similar to the models on working hours per week, the variables on flexible working arrangements are both negative and insignificant. Going on, the next significant variable in the OLS models irregular working time has a negative direction. This implies that mothers with irregular working time (for instance in the night or at the weekend) are negatively related to an increase in daily working time due to ESCC. While this observation is not significant in the FE model, it has at least the same direction. The satisfaction with childcare inhabits in both the FE and the OLS model a negative and insignificant coefficient. The coefficient approaches nearly zero in both cases, implying that a potential effect of childcare satisfaction can be neglected in this analysis. Similar to the models on working hours per week, time pressure reveals highly significant and positive results in both the OLS and FE model. The effect of time pressure on working hours is supported in various estimations. Furthermore, both model reveals significance for the effect of gaining reputation on working hours. Here, the coefficient is positive. The significant and negative sign of the coefficient for being satisfied with the childcare reveals that mothers with a one-unit increase in satisfaction with their salary increase their working hours. While the result is not significant in the FE model, is has nevertheless the same sign.

Concerning further controls, the individual income is again for both specifications positive and highly significant. However, in comparison to the results of the FE and OLS model, the coefficients are on a lower level. The coefficient of the household income is significant as well, but their coefficient goes in a negative direction in the OLS model. Furthermore, the martial status seems to be influential in the OLS model. Here, mothers who are not married are more likely to increase their working hours per day if they use ESCC.

6.2.3 Sensitivity tests on direct impact

The main specifications presented in the previous sections are based on the assumption of control groups which had in both pre and post period no access to ESCC. Since it might be also plausible to compare the working behavior to controls groups with mothers experiencing in both periods the availability or usage of ESCC, these results will be presented in the following analysis. The following table contains results for different specifications.

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Table 6-10: Sensitivity results on direct impact of ESCC on maternal working behavior

		Period		Work hours per week			Time devoted to work		
		Pre-Treatment	Post-Treatment	Coef.	R. SE	N	Coef.	R. SE	N
1.	TG	No ESCC	ESCC avail.	2.85	1.56	196	0.79	0.44	196
	CG	ESCC avail.	ESCC avail.						
2.	TG	No ESCC	ESCC usage	3.58*	2.12	120	1.19*	0.64	120
	CG	ESCC usage	ESCC usage						
3.	TG	ESCC avail.	ESCC usage	9.04***	2.62	100	2.57 ***	0.761	100
	CG	ESCC avail.	ESCC avail.						
4.	TG	ESCC avail.	ESCC usage	N too small			N too small		
	CG	ESCC usage	ESCC usage						

Notes: Significance tests: * t>1.65, ** t>1.96, *** t>2.58, just FE models are presented

Source: FiDv4.0

The table includes three different specifications. The first one is characterized by the fact that the availability of ESCC is introduced for the treatment group in the post-treatment period while it is available in both periods for the control group. No significant results can be found here. The second approximation deals with a treatment group which uses ESCC in the post-treatment period. The control group consists of members who use ESCC in both periods. Here, a positive and significant effect can be found. The third group inhabits that ESCC is available in the pre-treatment period and the mothers use it in the post-treatment area. In comparison, ESCC is provided in both periods to the control group. The effect is positively and highly significant here.

This table leads to two different conclusions: Firstly, merely the availability of ESCC does not influence the employment behavior of mothers significantly. Secondly, it seems that the usage of ESCC has the highest effect when ESCC was previously available but not used. The interpretation of these findings will be done in the next chapter.

6.2.4 Indirectly affected through the partner

This part of the empirical analysis shall investigate whether the provision and usage of ESCC to and by the partner is an influential factor for the employment behavior of the mothers. Therefore, the following table contains the effects of the availability of ESCC to the partner on the working hours of the mother. The control group consists of mothers having a partner whose employer does not provide ESCC.

Table 6-11: Estimations on working volume with indirect effect of available ESCC

	Work hours per week			Time devoted to work per day		
	Coefficient/ ATE	R. SE	R-Square	Coefficient/ ATE	R. SE	R-Square
Propensity Score Matching						
Radius matching	-1.5	1.74		-0.16	0.42	
Kernel matching	-1.26	1.65		-0.22	0.38	
Difference-in-difference estimator & propensity score matching						
OLS regression	-0.05	1.27	0.68	-0.36	0.15	0.57
Fixed effects regression	0.06	1.09	0.43	-0.4	0.33	0.29

Notes: Significance tests: * t>1.65, ** t>1.96, *** t>2.58

Source: FiDv4.0, own calculations

The estimations both for the working hours per week and the daily hours devoted to work inhabit mostly that there is a negative effect on the working behavior of mothers. However, the results are never significant and the size of the standard error is always far higher compared to the size of the coefficients. The results should not be interpreted in a meaningful way.

The following table contains the results regarding the influence when the father is actually using it.

Table 6-12: Overview of estimations on working volume with indirect effect of usage ESCC

	Work hours per week			Time devoted to work per day		
	Coefficient/ ATE	R. SE	R-Square	Coefficient/ ATE	R. SE	R-Square
Propensity Score Matching						
Radius matching	7.48***	1.56		1.2***	0.40	
Kernel matching	0.93	1.90		-0.63	0.54	
Difference-in-difference estimator & propensity score matching						
OLS regression	-3.57	2.67	0.67	-0.73	0.73	0.58
Fixed effects regression	-0.47	2.24	0.43	-0.01	0.54	0.42

Notes: Significance tests: * t>1.65, ** t>1.96, *** t>2.58

Source: FiDv4.0, own calculations

With regard to the different estimations on the working hours per week, a range from -3.57 to 7.48 hours can be observed. Taking the size of the standard errors as well as the insignificance of the coefficients, the results do not seem to provide substantial information. The same conclusion can be made for the results regarding the daily working time.

6.2.5 Interim conclusion

The results on the working volume have revealed that in first instance the usage of ESCC has a positive and significant impact on the working behavior of mothers. The availability or the indirect effect through the partner have no significant impact on the working behavior. Regarding the factors which might be influential based on the theoretical framework, preliminarily working in the service sector and having time pressure show consistent results. The other variables have also significant results, however, they are not consistent over several estimations and need to be interpreted individually.

6.3 Validation of the results

This section shall shortly evaluate the here presented results within the outcomes of other studies. Thereby, it should be noted that a direct comparison is difficult due to the time span of the dataset. The data set covers a time span, which begins after the introduction of the parent's money reform in 2007 and ends before the introduction of the parent's money plus in 2015. Furthermore, the legal claim for childcare facilities for children being one-year-old has been in place after the data set expires. The time span as itself seems to be a distinctive factor as itself.

Section 2.3.3.2. "Outlook on employer-supported childcare" has revealed that the distribution of ESCC is rather small in Germany. According to this dataset, four percent of the individuals within the sample were working in companies offering ESCC before giving birth. This percentage is something higher compared to the two percent revealed in the previous section. However, the two percent focused explicitly on on-site childcare, while here an aggregation of different kinds of ESCC is taken into account.

Concerning the return-to-job, several other studies focused on the employment rates after the birth of the last child. For instance, in 2007, around 26 percent of the mother were working either full-time, part-time or marginal when the youngest child is twelve months old. The amount increases to 37 percent when the child is two years old and 52 percent if the child turns three years (BMFSFJ, 2008). The BMFSFJ (2012b) reported that around 40 percent of the mothers with a two-year-old child and 50 percent of the mothers with a three-year-old child were working in 2010 using the Microzensus. Focusing on the time span of the years 2007 to 2011 and using the SOEP, approximately 24 percent of the mothers are working

one year after giving birth and around 49 percent are employed within three years after childbirth in former West Germany. Contrary, around 34 percent of mothers living in former East Germany were employed one year after giving birth and approximately 60 percent in the third year after giving birth (Drahs, Schneider, & Schrauth, 2015). These results are roughly in line with the here presented findings which said that around 23 percent of the mothers are working 12 months after giving birth, 50 percent 24 months after giving birth and 65 percent 36 months after giving birth.

With regard to the working volume, figure 2-9 reveals that approximately 54 percent of all mothers with children between two and three years are working in the year 2011. Thereby, eleven percent are working below 15 hours per week, 28 percent are working between 15 and 32 hours and 15 percent are working more than 32 hours. Within this sample, 12 percent of the mothers in the same year with children in the same age are working more than 32 hours, 27 percent are working between 15 and 32 hours and eleven percent are working less than 15 hours per week. Hence, about 50 percent of the mothers are working, which seems to be comparable to the results of figure 2-9. Moreover, the here presented results and outcomes from other studies show the same tendencies as the working volume as well as the proportion of employed mothers raises with the age of the children.

6.4 Conclusion

The different sections of this chapter demonstrated a positive effect of ESCC on the working behavior of mothers. However, it has been shown as well that this effect is not adoptable for employment relationships in general, but might be dependent on distinct working situations.

Regarding the return-to-job dimension, it seems that there are strong tendencies that merely the higher educated mothers with greater income and flexible working environment are employed in companies with ESCC. However, the impact evaluation did not prove that there is a causal impact in this essence. The same observation could not be made for the working volume. The following table contains an overview of the hypothesis, which can be clearly confirmed or rejected based on a significant coefficient.

Table 6-13: Overview of hypothesis analysis

Hypothesis	Work dimension	Analysis
Company policy and administration		
Mothers are more likely to increase their working behavior due to ESCC if they are working in manufacturing sectors	Return-to-job	Confirmed
	Part-time return	Confirmed
	Direct usage	Confirmed
Mothers are less likely to increase their working behavior due to ESCC if they are generally working in the public sector.	Direct usage	Rejected
Mothers are more likely to increase their working behavior due to ESCC if they are working in the service sector.	Direct usage	Confirmed
They are less likely to increase their working behavior ESCC if they are working in knowledge-based industries.	Direct usage	Confirmed
Factors in personal life		
Mothers primarily working at irregular times are more likely to increase their employment rates due to ESCC.	Return-to-job	Rejected
	Direct usage	Rejected
Mothers who perceive their work as stressful and too demanding do less likely increase their employment rates due to ESCC.	Direct usage	Rejected
Status		
Mothers are more likely to increase their employment rates due to ESCC if they state that gaining reputation from their job is important for them.	Direct usage	Confirmed
Salary		
The higher the satisfaction with the salary, the more likely a mother increases her employment rates due to ESCC.	Part-time return	Confirmed
	Direct usage	Confirmed

Some estimations highlighted that the existence or the usage of ESCC might not be essential itself, but the combination of other family-friendly working arrangements. A further finding concerns the kind of measurement of the dependent variable. It seems that the effect is more often significant for the time devoted to work per day, which included overtime as well. This could mean that the usage of ESCC does not increase the agreed working hours, but the working hours which are not necessarily part of the contract.

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7. Discussion: ESCC as a Human Resource Policy for Mothers

The subsequent sections discuss the results distinctively in regards to return-to-job and working volume distinctly. Afterwards, common implications with a focus on the reference to the theoretical expectations as well as the conclusions of the sections on further effects are compiled. The discussion on the theoretical implications of the both empirical parts is combined since the same framework has been used for both parts and conclusions can be hence deliberated about each other.[16] The final part includes as well a discussion on the reasoning of non-significant variables, which have been excluded due to pre-tests.

7.1 Implications on the effect of ESCC on the re-entry to work

The first part of the analysis examined that the availability of ESCC before giving birth positively affects the decision to and point of time when a woman returns to work, which is supported by both descriptive statistics and impact evaluation. Being aware of the additional option of childcare before beginning parental leave seems to influence maternal labor supply positively during the work interruption. The regression results reflect further implications substantial enough to warrant it being highlighted that this part of the analysis excludes mothers who are not returning to work at all. Unfortunately, the chosen method does not allow differentiating between the influence of ESCC on the decision to return-to-work in general or the length of the work interruption.

In line with perceived supervisory support theory (Eisenberger et al., 2002), a sympathetic supervisor seems to influence positively the decision and time to return-to-work. Especially for working mothers, the direct supervisor is able to encourage or discourage work motivation substantially, which is independent of the availability of institutionalized HR policy like ESCC (Casper, Martin, Buffardi, & Erdwins, 2002). It has been revealed that mothers might be reluctant to use ESCC due to a stigmatization of working mothers (Hoobler, 2007). Eisenberger et al (2002) state that direct supervisory encouragement is especially helpful if the supervisor shields the employee from potential stigmatizations (for instance, an employee in a part-time employment mode might overtake responsible tasks). This argumentation is not supported through the interaction between perceived support and ESCC. Hence, a positive effect is not doubled due to a supportive department head in combination with ESCC.

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16   The term maternal labor supply is used as an umbrella term of both the re-entry into work and the working volume of mothers.

The more family-friendly HR policies are available, the more positive is the effect on women facing the decision to return to work. Explicitly the different policies are included in the analysis in terms of a continuous scale. This implies that the amount of HR policies is counted. Thereby, the focus is not on the distinct characteristic of the individual policy, but on the implications of providing several HR policies. The amount of HR policies that are advantageous for a certain target group characterize the working environment (Herzberg et al., 1959). In the context of returning to work, this observation supports the statement that the working environment characterized by HR policies is one of many factors for mothers who decide to return to work or stay at home (Fitzenberger et al., 2015). Therefore, to note the difference between availability and the actual use of employee-friendly HR policies is relevant. The theoretical framework by Herzberg et al. (1959) does not address the division between availability and usage, but pre-tests showed far more positive and significant results for the usage of HR policies. Hence, the design of HR policies needs to include, that all employees of the target group benefit from it and are able to use it. Again, the interaction term HR policies and ESCC is insignificant. While ESCC as a distinct determinant is positive, it might be that this positive impact can be offset by other policies. Thus, it does not consequentially need to be ESCC to increase the amount of mothers returning to work after childbirth.

Flexible working arrangements support the re-entry to work after childbirth. The interaction between flexible working arrangement and ESCC does not support the positive effect. While ESCC as itself might be perceived as a restricting or controlling policy (Hoobler, 2007) and flexible working arrangements imply some degree of self-determination (Deci, 1980; Deci et al., 1999), the perception of control due to ESCC might be a matter for mothers who already have a certain degree of autonomy at work. Besides, it could be argued that mothers able to adjust their working time and/or location freely are not dependent on restricting opening times of public childcare facilities (Wrohlich, 2011).

The hypothesis on gaining reputation included that mothers are more likely to increase their employment rates due to ESCC if they state that establishing a reputation in their job is important for them. This statement cannot be supported here; rather the opposite seems to be true. Certain female employees may decide to become mothers, but still have the intrinsic motivation of acquiring a reputation at work (Pollmann-Schult, 2015). Reducing work time might be best defendable before themselves and colleagues, if there are legal requirements or national policies protecting and defending them (Kluve & Schmitz, 2014). Hence, it does not seem to be surprising that the hypothesis is not positively significant, since the target group of this hypothesis does not appreciate ESCC at this point in time.

Concerning irregular working times, the following can be said: While irregular working times seem to be positive and highly significant for the return to work (Beckmann, Cornelissen, & Kräkel, 2015; Stuth et al., 2009), the interaction with ESCC reveals the opposite. Two lines of argumentation might be applicable here. On the one hand, it could be that ESCC does not open at exceptional times, as it is often highlighted in articles promoting ESCC (BMFSFJ, 2006). On the other hand,

it could be that the partner is working at regular times meaning they can take care of the child, too. Especially in the time early after giving birth, parental care might be preferred (Ermisch, 2003).

Greater satisfaction with the salary is associated with a positive effect on work behavior after work interruption. Mothers with a satisfying income have a greater incentive to return-to-work even if they receive only fringe benefits by the state for a time. However, the insignificance of the interaction with ESCC could imply that employees who already are experiencing satisfaction with their compensation for work, do not visibly react to ESCC. For instance, it might be that they are able to buy their preferred kind of childcare. This could be regarded as an extended argument to the fact that efficiency wages have stronger effects if they are surprising. A surprising efficiency wage's effects cannot be included in someone's planning (Flynn, 2005; Frey & Jegen, 2001). As shown, employees with a higher standing within the company are less likely to impress upon efficiency wages, "responses to unexpected gifts are considerably stronger toward the bottom of the productivity distribution than at the top" (Baron, 2013, p. 130).

All hypotheses on the economic sectors can be neither confirmed nor rejected due to results being inconclusive. The theoretical framework revealed that working in a distinct sector shapes a specific work environment. This environment might however not be specific enough to influence the decision to return-to-work after childbirth, even if efficiency wages are involved. Time pressure is assumed to have a negative effect in combination with ESCC on the return-to-work behavior. However, the variable was already excluded in pre-tests. Possibly due to the fact that mothers with a great amount of stress at work already assume that their work-related stress level shrinks after giving birth.

The literature review showed that a return-to-work is predominantly influenced by parental leave policies, rather than individual preferences or other factors.[17] This might explain that there are certain hypotheses, which cannot be confirmed here. Rather, it seems that there are determinants like the perceived working environment, which influence the return-to-work dimension positively. These are however independent of ESCC, whereby ESCC as itself has a positive and significant influence. The hypotheses on human capital have both been excluded due to pre-tests. Control variables on individual and household income do not show any significance in this context either. It can be assumed that there is a certain degree of correlation between income and education. Both variables might not be explanatory in the context of returning-to work after work interruption due to the parent's money, which has a comparably high level of salary replacement compared to earlier policies in this field. In other terms, the disposable income could reveal greater explanatory power when the child is growing, but not immediately after giving birth and during the reference period of the parent's money. The results on gaining a work reputation supported the

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17 The hypothesis on childcare satisfaction has been excluded from this part of the regression specifications (see section 5.4.1.2. "Application").

importance of parent's money for mothers since even mothers with greater career ambitions take time off work to be able to care for the child by themselves. This result supports the idea of the introduction of the parent's money as a paradigm shift in the context of social policy design: The parental leave benefit is valid for up to 14 months with a relatively high salary replacement rate. Parents have a strong incentive to stay home during the first year after birth, but also to re-enter employment within the second year. The policy offers a certain psychological aid to mothers to stay at home, legitimizing a career-pause (Wrohlich et al., 2012). Consequentially, HR policies like ESCC are not very attractive for this target group at this point in time.

When women did return to work, it became interesting to review the relationship of working time, marginal, part-time, full-time, and ESCC. The descriptive results showed that ESCC leads to an increase in part-time work diminishing marginal work participation. This shift in distribution of employment modes has positive implications for the mother. Part-time work is significantly more often offered in unlimited contracts and affects social security taxes. Part-time employment after childbirth thus can have positive long-term implications (Huesmann & Gärtner, 2015). Furthermore, section 2.2 "Maternal working preferences" has revealed that mothers prefer working less than 40 hours per week, but more than working hours in the range of single-digits. Since part-time work increased on the cost of marginal employment and ESCC has no explicit effect on full-time employment, the working time preferences of mothers do not seem to be conflicted due to ESCC. The impact evaluation reveals that there is no significant effect on the return-to-work for marginal and full-time working mothers, but there is on part-time employment. Full-time and part-time work after childbirth are no substitutions, but are based on distinct decisions influenced by certain determinants. Frodermann, Müller, and Abraham (2013) argue that both kinds of employment cannot be optimized simultaneously and with the same instruments, forcing us to treat the results for both separately.

The reason for the insignificance of ESCC on return-to-job behavior in marginal employment might depend on the heterogeneous reaction towards HR policies in general. Workers outside standard employment relationships often profit less from certain work-life balance policies (Mauno & Ruokolainen, 2015). While the policies are mostly addressed to all employees, normative pressures influence both their acceptance and usage (Pasamar & Alegre, 2014). Especially low-skilled workers or workers with a small amount of working hours often need the explicit support of their superiors to use HR policies. Otherwise they might not be aware of it or do not feel authorized to use them. Another reason concerns the work contract. These employees often have temporary, limited contracts (Muse & Pichler, 2011, 2011). Using ESCC, and especially on-site childcare or company-commissioned kindergarten spots, should probably be seen as using ESCC for a sustainable period to ensure the well-being of children. Mothers with this kind of contract might opt out of ESCC.

Concerning the insignificance of ESCC for full-time employed mothers, another argumentation might be applicable. Mothers returning to full-time work immediately after the parental leave benefit ends often have several years of full-time work

experience and pursued promotions previously (Fitzenberger et al., 2015; Froder-mann et al., 2013). Since they perceive their working status as important either due to financial reasons or personal preferences, they might already plan childcare before actually giving birth (Konietzka & Kreyenfeld, 2010). To be able to rely on it and work without any guilt due to inadequate or insufficient childcare, they probably already organized their preferred kind of childcare beforehand. Furthermore, it might be that their partner is staying at home and taking care of the children (Hammermann, Schmidt, & Stettes, 2015).

Significant and positive results have been identified for mothers returning to part-time work. The descriptive results revealed that part-time work increased considerably due to ESCC, while marginal employment for mothers decreased substantially in companies offering ESCC. Hence, it could be that these mothers were indifferent about either returning back to work at all or about working marginal or part-time, but a supporting working environment encouraged their labor supply (Casper & Buffardi, 2004). Both, the significant coefficients on perceived supervisory support and the usage of HR policies characterize the working environment. A trusted supervisor could encourage mothers to expand their working hours from marginal employment to part-time employment. The usage of HR policies is relevant since the regression specification inhabits that mothers took advantage of these policies even before the child was born. The satisfaction with the salary as well as the personal significance of the individual income show that a supportive working environment seems to be influential as well as both variables reveal that these mothers do not work strictly due to financial reasons. This observation is supported by the insignificance of the household income and the fact that variables on individual career orientation have either been excluded in pre-tests or do not appear to have significance. ESCC especially reveal high positive results when focusing studies on manufacturers. Since efficiency wages are relatively rare in this sector, the effect of ESCC can be stronger here (Baron, 2013; Flynn, 2005). The significant interaction term on the satisfaction with the salary and ESCC might reveal the following: the extraordinary satisfaction with the salary might itself act as an efficiency wage, leading to a greater work time. The additional effect of ESCC intensified the impact.

Altogether, the effect of ESCC on the return-to-job behavior of mothers can be regarded as positive, but is not a main factor. Firstly, ESCC per se does not seem to ensure the re-entry of mothers into the workforce, but needs to be seen as just one factor forming a perceived supportive working environment. As stated above, the working environment seems to be influential (BMFSFJ, 2008). Dependent on either internal heterogeneous reactions towards HR policies or individual preferences on childcare, mothers working pre-dominantly part-time regard ESCC as a positive influence. The single most influential factor in deciding on re-entry to work, however, seems to be the provision parent's money. It influences both the length of the break and the amount of work (for instance how much money can be earned within the reference period) substantially.

7.2 Implications on the effect of ESCC on working volume

The previous section discussed the effect of ESCC, when it is available in a company before a mothers leaves for giving birth. This section focuses on the effect of ESCC when the mothers is already working with young children.

The results on the effect of ESCC on the working volume of mothers with young children revealed in different specifications that the availability of ESCC merely does not influence the working behavior at all. There might be two lines of argumentation applicable why mothers do not use ESCC. Firstly, it could be that there is a divergence between the wish of parents to use it and availability of free spots in case of on-site childcare or rented spots in a local kindergarten. Weßler-Poßberg (2014) analyzed three case studies for Germany. They found that at times there were up to 120 requests by parents, but just 22 free spots. The selection process is mostly depended on having siblings, being a single parent, having worked abroad, and employment status of both parents. Hence, mothers who do not fulfill all requirements but are still in the urgent need of childcare assistance may not have any ESCC benefits. Moreover, Weßler-Poßberg highlighted that in two out of three on-site childcare centers parents could not choose their preferred care time freely. One childcare center allowed the choice between 35 and 45 hours per week while the other one offered only 45 hours. Consequentially, mothers preferring a smaller amount of care time might choose other kinds of childcare.

While the previous argumentation referred to possible restrictions by the provider which might not be tailored to the needs of the parents, it might also be that mothers simply choose not to use it. Thereby, Hooblers' (2007) argumentation applies that mothers might not be regarded as mothers within the company. While this argument refers to a certain career orientation, it could also relate to a different perspective. It could be that mothers do not want to mix their private and working lives. In a similar vein Casper, Martin, Buffardi ,and Erdwins (2002) stated that employees use family-friendly HR policies only if they have a supportive work environment and do not expect negative influences on their private or work lives. This argumentation has been used by Bremke (2016) to explain why Germans tend not to use a home office when given the option. Employees expect negative implications for their career advancements if they are not regularly in the focus of their supervisors. The reasoning differs in case of mothers, namely they are physically at the working place, but it might be that their private responsibilities are pushed into the office. While the reasons for abstaining from certain HR policies differ, employees in both cases do not want to diverge from the regular employment mode.

The results regarding the usage of ESCC might explain the underlying reasons for mothers increasing the labor supply, which might be helpful in addressing why some mothers opt out. For both outcome variables, working time per week and per day, a positive causal effect of ESCC on the working volume of mothers, can be observed. Before discussing the influence of the explanatory variables, implications of using the two distinct types of outcome variables will be made. While

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working hours per week refer to the agreed working time between the employer and employee, the daily working time includes overtime as well as work preparation. The first kind of measurement can be regarded as the legally stated work time as written in the work contract, while the second one refers to actual working time. This difference can have substantial implications, especially for employees with childcare obligations. Since overtime and work preparation are often unpaid (Huesmann & Gärtner, 2015), they can be either regarded as the good will of the employee or work forced unto the employer by the company due to work amount. In both cases, employees' time to be spent with their children decreases. While the main coefficient of working hours per week is absolutely higher compared to the time devoted to work per day, the relative size of the coefficient on the time devoted to work per day rather presumes that ESCC has a greater effect on the actual work time than on the agreed work time.

Concerning the two outcome variables, common implications will be analyzed before highlighting differences. Contrary to the results to the re-entry of working mothers due to ESCC, the working volume seems to be substantially influenced by different sectors. In reference to the health and education sector, mothers are less likely to increase their work volume due to ESCC in the public sector and more likely to do so in the service and manufacturing sectors. There is no effect regarding the influence of knowledge-intensive sectors. These four results are robust over both outcome variables.

Regarding the public sector, the theoretical framework has revealed that efficiency wages are just effective in this sector if they signal rewards (Frey et al., 2013). According to the empirical results, it seems that ESCC cannot be included in this category. Additionally, it seems that mothers with young children working in the public sector are distinctly due to certain interdependent characteristics resulting both from their intrinsic work motivation and their working environment (Weßler-Poßberg, 2014). Significantly contrary to other sectors, several mothers working in the public sector push themselves in certain roles by demanding part-time work in the morning. Being offered flexible working time by the supervisor, most women do not increase their working time. This attitude is predominantly observed for women acting as the secondary wage earner with a medium or high qualification, while mothers with a low education in the public sector are often required to work irregularly with spontaneous work schedules and would like to increase their working volume. While the public sector pushes gender equality and the reconciliation of work and family due to legal requirements, HR policies are often reserved to the ones in regular employment. Hence, it can be noted that the group of mothers, who would preferably use ESCC and as a consequence extend their working volume, are not in the position to use it, and the group of mothers, who could use it do not want to use it.

Both the manufacturing sector as well as the service sector reveal higher maternal employment rates due to ESCC, leading to the question whether the effect is driven by the same determinants. Both sectors are not known for offering efficiency wages. In contrast to the manufacturing sector, the service sector is

often characterized by higher fluctuation rates, more often part-time working conditions, small-scale business structures, atypical working modes and lower wages, resulting in generally worse working conditions compared to other sectors. Contrary, the manufacturing sector is often marked by work councils and labor agreements, leading to a larger amount of written regulations (Ellguth & Kohaut, 2012). This design means that contracts are relatively fixed in comparison to employment modes, for instance visible in the knowledge-intensive sector (Flynn, 2005). Consequentially, it could be assumed that mothers working in the service sector are able to increase their working volume due to ESCC, because the generally worse working conditions, especially the unexpected work schedules, would not allow it otherwise. Mothers working in the manufacturing sector are generally not used to efficiency wages and value them accordingly. This argumentation is in line with the observation that ESCC does not affect mothers employed in knowledge-intensive sectors.

Regarding work schedules, the following observations can be made: Mothers who are not able to work in flexible schemes are more likely to increase their working volume due to ESCC compared to mothers with flexible working arrangements. This result might be a hint for opening times of ESCC, which are either flexible or long (Wrohlich, 2011). Several mothers increase their actual working time due to ESCC, but not mothers in irregular working modes.

The increase in perceived time pressure of mothers using ESCC and increasing their working volume can be explained by the general decrease in freely disposable time, which comes along with an increase in paid time, which is not necessarily dependent on using ESCC or any other kind of ESCC (Kreyenfeld, 2015). The same argumentation can be applied to the increased income across all specifications, namely that an increase in working volume (due to ESCC) goes along with an increased individual income. The inconsistent results within both specifications and between both specifications on gaining a work reputation and salary satisfaction reveal that personal attitudes are not the driving factor here.

The meaningless results on the satisfaction with childcare in both specifications hint that mothers do not change to ESCC due to the overall non-satisfaction with their current childcare in terms of quality. Rather, the other variables allow the assumption that they change their behavior as a reaction to certain working conditions. This observation can be supported by the following assessment: Different specifications revealed that ESCC has the most valuable effect if mothers were working in a company, were ESCC was first available, and then the mothers used it. This situation differed for instance to a situation, in which mothers immediately used it, but it was not just available beforehand. Mothers increase their working volume due to ESCC if they realize that ESCC facilitates the combination of working and child caring without having negative side effects. It can be concluded with certainty that ESCC provides conditions which allow the extension of working hours for a group of mothers who are working for a company having ESCC, but who are just using it after being aware of it.

The control variables, especially the ones on income, can help to shed light on the question whether mothers work solely due to financial pressures. The previous discussion on the re-entry into work is biased in a sense, since the effects of the salary replacement of the parent's money cannot be isolated. The individual income is consistently significant implying that mothers with a relatively high income increase their working volume due to ESCC. Since the variables on education and firm-specific human capital do not reveal significance, it cannot be assumed that employed mothers with a certain standing within the company are overwhelmingly benefiting from ESCC. On the other hand, it also leads to the assumption that financially weaker mothers do not start working due to ESCC. The last conclusion is additionally supported by the fact that the household income shows no useful interpretable data. Other control variables do not reveal consistent results either, leading to the conclusion that they bare no influence on the usage of ESCC, which in turn could influence labor supply.

The results on the indirect effect of ESCC (for instance through the usage of the father) inhabited no conclusive results. There do not seem to be differences between the availability or usage of ESCC by the father. Nevertheless, it should be discussed why there seems to be no positive indirect effect as it can be assumed that fathers would relieve mothers. It might be that there is a certain amount of mothers who do not re-start working at all, preferring to focus on children and household (Bertram, Rösler, & Deuflhard, 2015; Lauber et al., 2014). This distribution of paid and unpaid work within the household might be especially prevalent if the father has a well-paid job or is self-employed, and if ESCC responds to their needs. also, the mother might be in a phase of occupational re-orientation (Fitzenberger et al., 2015), such as pursuing additional education and hence benefit from the involvement of the father in childcare. While the assumptions cannot be justified in the context of this analysis, future research should consider these issues extensively. These two arguments address practical issues, while the following returns to the discussion of gift exchange theories: individuals reciprocate when they perceive a gift. Therefore, the usage of ESCC by the father is not regarded as a gift to the mothers, since it is not her employer who is offering it, but the employer of the husband. The mother, thereby, has no reason to provide an extraordinary work effort.

To conclude, the following implications can be derived: Firstly, the usage of ESCC has a positive influence on both the agreed but also the actual working time. The availability of ESCC is not sufficient, nor is the usage by the father. Moreover, the effect of using ESCC on working volume is stronger if the mother was offered it beforehand, but did not use it. Secondly, contrary to the analysis on the re-entry into work, there is a substantial amount of explanatory power coming from the economic sectors. Hence, contrary to entering employment after childbirth, the influence of the individual and subjective perceived working environment is downsized through the general working attitude of the sector. Thirdly, work schedules are relevant when deciding on using ESCC.

7.3 Overall implications of ESCC for maternal labor supply

After having discussed the meaning of the distinct empirical results, the following section will address the results in context. Both, the results concerning the re-entry to work and the work volume are derived from the same theoretical framework, but are the implications the same?

The Homo Economicus per se assumes that individuals react positively on external incentives (Kirchgässner, 2008). However, there also might be the intrinsic motivation, which implies that individuals would like to increase their labor supply due to their own interests. It has been proven in section 2.2 "Maternal working preferences" that several mothers of young children would like to extend their working time, but external circumstances hamper them. Thereby, it needs to be highlighted that several mothers do not regard financial reasons as the main argument for a preferred increase in working time (Lauber et al., 2014). Several reasons hint that mothers enjoyed their working life before giving birth and would like to return to the previous working status.

Further, from the theoretical perspective, including social preferences in the equation of (maternal) labor supply and external incentives, it can be argued that the intrinsic work motivation can be either crowded in or crowded out due to incentives (Frey & Jegen, 2001). The phenomenon of crowding out does not seem to be applicable here. None of the results in all kinds of analysis spoke to the ESCC influencing maternal labor supply negatively.[18] However, it needs to be highlighted that ESCC can be regarded as a voluntary incentive, meaning that employees with childcare obligations are not forced to use ESCC. In other kinds of gift-exchange settings, the prevailing situation differs. For instance, the introduction of access to internet at the workplace can be perceived as a controlling policy if it is introduced without requesting it and with a strict supervisor (Koch & Nafziger, 2015). The perceived feeling of losing self-determination is one determining reason for the crowding out effect of intrinsic work motivation (Deci & Ryan, 1985). This implies in turn that a potentially negative effect of ESCC on maternal labor supply would be visible only if employees were forced to use them and employees perceived this 'enforcement' negatively. Due to its nature, the enforcement of ESCC would affect the private life of the employees, which implies that the crowding out effect could be intensified since about one quarter of the employees regard the involvement of the employer in the employees' private lives as outside their responsibilities or rights (Anderson, Birkeland, & Giddings, 2009). Since it can be assumed that the participation in ESCC is voluntarily, mothers who do not like the idea of receiving childcare support from their employer can ignore it.

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18 While some specifications on the indirect influence of ESCC inhabited a negative coefficient, these were not significant or consistent.

The results reveal that ESCC leads to results which can be classified as potential effects akin to an efficiency wage. In turn, it supports the conclusion that an efficiency wage can be interpreted in a broader way than just monetary terms. This conclusion is in line with further literature, as for instance the access to the internet can be regarded as an efficiency wage under certain conditions (Koch & Nafziger, 2015). Kosfeld and Neckermann (2011) observe that efficiency wages may also exist in form of a non-material status and/or social recognition rewards. Thereby, it is important to highlight that non-monetary efficiency wages do generally have a greater impact than monetary efficiency wages, due emotional responses experiencing gift exchange (Kube, Maréchal, & Puppe, 2012). Furthermore, non-monetary efficiency wages have a longer lasting impact than financial ones, since employees remember the positive impact of the incentive. This observation is valid only, however, if the employees perceive the present as useful (Becker, Messer, & Wolter, 2013). This is in line with Maximiano, Sloof, and Sonnemans' (2007) observations that intention-based reciprocity is the main driving force behind the gift-exchange rather than social preferences of employees. Since the variable of childcare satisfaction does not seem to be influential here, it could be assumed that the reactions of mothers on ESCC are not (at least exclusively) due to worse alternatives, but rather because they want to reciprocate. At least some part of the positive reaction can therefore be regarded as coming from social preferences.

Concerning the heterogenic reactions of employees, certain ones might reciprocate to a large degree (Ng & Feldman, 2015). The results have demonstrated that there seems to be a higher impact of ESCC on the actual compared to the agreed working time. While there is no data providing insights on whether overtime is paid or unpaid, it should be noted that it would be fairer if the increase in agreed working time received some form of pay-out. This conclusion is supported by Ruffle (1999), stating that an incentive cannot be regarded as a gift, if the psychological benefit is outbalanced by the cost for reciprocity.

Going on, a non-monetary efficiency wage may have further implications since it expresses additional characteristics. In the context of ESCC, it implies that there are potential spillover effects to life besides working life. This interaction is non-existent for monetary efficiency wages. Hence, it could be questioned whether efficiency wages introduced by the employer are an effective instrument if the efficiency wage is connecting both domains. It may be assumed that they can be effective if the employee does not perceive the working environment as negative. In that case, it would be the preliminary task of the employer to change the working environment achieve a positive perception. Afterwards, the efficiency wages could have a positive impact. Similarly, it can be argued that mothers act in the best interest of their child (Ermisch, 2003), meaning they would not use ESCC if it were perceived negatively.

ESCC provides indications of a positive effect on increased working effort, however, in dependence on further factors, as the theoretical framework has argued that the intrinsic motivation might be affected by further determinants as well. Herzberg et al. (1959) distinguish between the hygiene factors, which serve as lower needs fulfillment, and motivators, which are higher needs fulfillment. It is here argued that

the intrinsic motivation might be affected by further determinants as well, meaning Herzberg et al. argue that both can be used independently of each other. Here, the hygiene factors have been used to systematically explain which determinants may influence the effects of ESCC. Thereby, it has been revealed that factors belonging to hygiene factors like satisfaction with the salary, usage of HR policies, or perceived supervisory support, show a positive impact on the re-entry into work, more so than on working volume. Hence, it can be concluded that hygiene factors are more important for the decision to re-enter employment than the decision to increase employment. In Herzberg's terms, mothers reenter employment faster and on a higher level if they are surrounded by positive hygiene factors. This implies that they are not dissatisfied with their working environment (Oechsler & Paul, 2015). According to Herzberg et al., the fulfillment of the lower-order needs is basic for the expansion of higher-order needs, which in turn have a positive impact on the intrinsic motivation. As it is shown below, several of the lower-order needs show support of working efforts, allowing the expansion of higher-order needs. The empirical part of this study has supported Herzberg et al.'s arguments that not all lower-order needs need to be fulfilled for to engage a greater working effort. This is contrary to Maslow who argues that all of them need to be approached.

Altogether, it can be concluded that the (partial) fulfillment of lower-order needs can provide a basis for positive emotional responses to the gift-exchange by Akerlof. The potential influence of working in distinct economic sectors has not been considered in Herzberg's theory. However, economic sectors distinguish themselves from one another by establishing prevailing norms, regulations, or laws. These characteristics mark the employees and in turn influence their working behavior (Frey et al., 2013), making their inclusion in the category company policy and administration logical. Especially the economic sectors had a significant impact on the working volume, which is in line with the efficiency wage research.

According to Hwang and Bowles (2014), crowding effects of incentives may have two different effects on human behavior, independent of crowding in or crowding out. It can be either categorical, meaning that the effect on the social preferences depend on presence or absence of incentives, or marginal, implying that the effect depends on the extent of the incentives. Both part of the empirical results underlined that the mere provision of ESCC is not sufficient to increase the working behavior of mothers. Concerning the re-entry to work after childbirth, a supporting environment is indispensable. Concerning the working volume, firstly a sufficient amount of places needs to be available. Moreover, the time schedules of the mothers need to be designed in a way that ESCC is a preferred alternative over other kinds of childcare. Thirdly, the working atmosphere engraved by the economic sectors play a substantial role for the effect of the efficiency wage.

The literature review as well as the empirical results revealed that the length of work interruption is substantially influenced by parental leave benefits. This fact can explain why there is an effect of ESCC among others, which is positive, but rather small (BMFSFJ, 2008). In general, it might be hard for an efficiency wage to offset prevailing legal and societal norms (Osterloh et al., 2014), especially in the

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context of maternal employment, which includes the consideration of additional human being (Ermisch, 2003). However, it should be noted that there is a positive effect of ESCC on the re-entry, supported by other determinants. The satisfaction with the salary can be interpreted as an original efficiency wage by Akerlof, if the employees state that they are highly satisfied with their salary. The positive perception of other family-friendly HR policies requires a look at the various HR policies. For example, consultancy in matters concerning the reconciliation of family and work could use the same interpretation as ESCC for the operationalization as an efficiency wage (see section 4.2.3. "Application of gift-exchange theory on ESCC"). The perceived supervisory support does not show the characteristics of the efficiency wage as it is coming directly from the supervisor and is not a policy by the employer. The classification of flexible working arrangement as an efficiency wage is less straightforward, "On the one hand, increased motivation associated with higher worker authority may raise performance. On the other hand, workers can abuse their authority and this can reduce performance" (Beckmann et al., 2015, p. 2). Depending on the occupation, it might, however, sometimes not be possible to enjoy a certain freedom since the employees need to be locally available or approachable for other colleagues or clients (Silim & Stirling, 2014). Independent of being classified as an efficiency wage or not, the main benefits of flexible working arrangements for employed mothers deal with a larger degree of independence on standard childcare opening times. However, mothers who are not used to flexible working arrangements might value them even more (Baron, 2013). This argument might be valid also for irregular working time; since irregular working time shows a negative coefficient in dependence on ESCC, it cannot be argued that less restricted opening times and ESCC are a reason for re-entering employment after childbirth faster or on a higher level of time involvement.

Altogether, it could be stated that a kind of bundle of efficiency wages consisting of ESCC, satisfying salary, and additional family-friendly HR policies seem to be relevant for the re-entry to work, but none of them individually (BMFSFJ, 2008). The provision of ESCC before giving birth does not imply that the mother is necessarily using it. Rather, it provides the possibility of using it in the future. This can imply a psychological effect. Moreover, it should be noted that there are other determinants, which cannot be regarded as an efficiency wage per se. While it probably does not matter for the employees whether they perceive their working environment as positive due to efficiency wages or due to other reasons, there might be implications for the provider of them. In this case, it might be difficult for an employer to introduce perceived supervisory support as it needs to come directly from the supervisor, and it is difficult to quantify it. For instance, if a child is ill, a mother needs spontaneous flexible work arrangements; the reaction of the supervisor to such requests might influence essentially whether mothers feel free to leave work or worried by doing so. Here, the employer here enforces limited power to ensure a family-friendly working environment. Kosfeld and Neckermann (2011) investigate a way of employers' institutionalized non-material, family-friendly support. The employer provided a hand-written thank-you card to acknowledge the work of the employee.

Concerning the working volume, the effect of the so-called bundle of efficiency wages is less pronounced here (BMFSFJ, 2012b). Rather, the economic sectors are influential. As already highlighted, the economic sectors are elementary to scholarship on gift-exchange settings. Concerning the economic sectors and maternal employment, section 2.1. "Male, female and maternal labor force participation" revealed that women are predominantly working in the sectors of human health and social work, education, public administration, and social security. In reference to the results at hand, no consistency can be found between economic sectors with a great share of female employees and economic sectors with higher effects of ESCC. Hence, it might not be that the preferred sectors for women do influence the reaction to efficiency wages, but rather the general work environment. This is in line with the observation that the effect of efficiency wages is not dependent on the size of the beneficiaries (Maximiano et al., 2007).

Re-entering employment after childbirth and the working volume of mothers with young children can be classified as two distinct categories in terms of employment modes. Both modes deviate from the standard economic relationship with continuous full-time work (Blau et al., 2006).

It could be argued that the analysis of the working volume of mothers with young children is closer to the regular employment modes than the effects on the re-entry to work. While children are a major influence in the life of a mother when it is in pre-school age, it might be that mothers are used to consider them in their daily working life and plan accordingly. Then, it might be that mothers' working behavior adjusts to the general working atmosphere. On the contrary, the return-to-job decision is made during the first time after giving birth, during which the mother is still getting used to everything. During this time, the mother might be predominantly influenced by individual concessions like usage of certain HR policies and satisfying salary rather than general working environment. The goal of facilitating maternal employment rates in terms of working volume and re-entering employment needs to be approached with various strategies. ESCC seems to be addressing both kinds of employment modes in distinct ways. Concerning the re-entry, ESCC seems to be one of several factors, which might support a faster return-to-work or an entrance on a higher working time level. The working volume seems to be more influential distinctly from ESCC as an efficiency wage.

Different implications of both employment modes can be observed for the results on the working schedules. In summary, concerning the re-entry into work, flexible working arrangements have a positive effect, lessened in impact when ESCC enters the equation. Irregular working times may have positive effects on the decision to return to work, the working volume, ESCC is more encouraging for maternal labor supply when mothers have no flexible working arrangements or if they have irregular working times. While the results seem to be contradicting at first glance, they must be seen in context. Both flexible working arrangements and irregular working time have a positive effect on the re-entry to work, diminishing in combination with ESCC. ESCC supports the labor supply when the working arrangements are flexible or irregular. Concerning irregular working time, it might be that mothers use their

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partner as the childcare opportunity during the re-start into work, who probably has regular working times. When the child is growing, and the irregular working time remains, mothers might use ESCC as a reliable alternative to the partner, who might also work outside standard working times. Since many parents prefer non-parental care as children age (Ermisch, 2003), ESCC might grow in importance. According to this argumentation, it can be concluded that ESCC is indeed adjusting to time preferences of working mothers. In line with this argumentation, mothers with young children and without flexible working arrangements are more dependent on it than mothers restarting work, since ESCC might be valued more at this later point than directly after giving birth.

Based on the discussion in section 2.3.3.1 "Reasoning and framework for family-friendly human resource management", it could be assumed that companies provide ESCC out of self-interest. Hence, they want to keep and attract employees with a high potential on pushing the economic well-being of the company (Kinnie, Hutchinson, Purcell, Rayton, & Swart, 2005). The underlying results do not support this impression. Firstly, there is no comprehensive support of a pre-selection into companies with ESCC, meaning that just higher-qualified women are working in companies with ESCC. Concerning the re-entry to work, some variables showed that mothers in companies with ESCC have a higher qualification, but this was not consistent. Regarding the working volume, no signs of a pre-selection within the descriptive statistics could be observed, which in turn showed the importance of doing PSM. Secondly, variables in the regression specification never revealed that mothers with a high education or a high company-specific human capital changed their behavior significantly due to ESCC more than others. Although the study at hand does not reveal whether ESCC support has been offered to certain groups of employees before others. This result has been investigated in a study from Canada, but the groups were rather consisting on the marital status than on economic resource of the employee (Zeytinoglu, Isik, Cooke, Gordon, & Mann, 2010). According to Baron (2013), a company generally offering ESCC-beneficiaries might even be in the interest of the employer, as star-employees generally value efficiency wages to a smaller degree compared to non-star employees. Higher standing employees are more used to additional benefits, and do not value the distinct one accordingly. In this context, it could be questioned whether the concrete target of ESCC on employees with childcare obligations includes negative side effects for employees, who do not benefit from it. However, there is a positive tendency that non-parents appreciate ESCC as well (Feierabend et al., 2011; Grover & Crooker, 1995). Nevertheless, it has been proven that a frustration effect can appear for parents, who are on the waiting list for on-site childcare (Kossek & Nichol, 1992). In addition, unemployed people or employees in temporary positions value ESCC to a higher degree compared to employees who had been working at one firm longer (Casper & Buffardi, 2004; Connelly, Degraff, & Willis, 2004). Nevertheless, there is also some evidence that all employees depending on certain life stages increase their commitment (Casper et al., 2002) as well as loyalty (Roehling et al., 2001) and decrease the absenteeism rates (Anderson & Geldenhuys, 2011) due to ESCC. Nevertheless, there

are also some studies, which do not find a positive effect on either of the dimensions (Goff et al., 1990; Lehmann, 2011; Ratnasingam et al., 2012). There is thus no guarantee for an employer that the introduction of family-friendly HR policies, and especially ESCC, influence the work behavior and attitude positively.

The previous revealed the implications of ESCC for mothers from the perspective of personnel economics, reviewing ESCC as a potential HR policy for increasing labor supply. Thereby, it has been ignored that the company is not legally obliged to provide childcare, but the state is.[19] The mother cannot trust that the employer is offering ESCC at all or continuously. Thereby, it needs to be highlighted that providing ESCC, especially on-site childcare, is an enormous task for an employer (BMFSFJ, 2006). Section 2.3.3.3. "Economic effects for the firm" revealed that consistent evidence of economic benefits for the company itself cannot be found. Hence, it might be that companies put effort into providing ESCC during economic times of prosperity, but neglect or abolish such provisions during recessions.

This paragraph deals with the effects of the individual characteristics of working environments, since research has shown that there is a remarkable influence of them on maternal labor supply. It is remarkable that the control variables on individual characteristics in this study generally do not exhibit substantial explanatory power. The insignificance of the results concerning living in former East or West Germany shall not lead to the impression that the inter-German cultural differences do not exist anymore. Rather, it seems that the cultural attitudes do not influence the reaction to efficiency wages. While living in former East or West Germany generally influences maternal labor supply, it seems that cultural attitudes are rendered irrelevant through social preferences towards efficiency wages or the working environment.

It has been shown that the influence of the income is distinguishable. While household income does not seem to be influential at all, a higher individual income is often associated with greater maternal labor supply. A higher individual income can be assumed to be related to a general satisfaction with the employment situation, which might explain its positive significance in the context of ESCC as a driver for maternal employment. This analysis does not shed light on the question whether the mothers need to work out of financial reasons. However, it could be assumed that mothers with a low household income need to work out of financial reasons, but that they do not want to be dependent on ESCC. For instance, if they have the opportunity of switching to a higher paid job, the usage of on-site childcare could be a potential obstacle.

Several variables acquired attention during the course of the thesis, which have been excluded, through pre-tests, in the econometric models. The following paragraph will address potential reasons for their exclusion.

One variable frequently mentioned in the context of family-friendly HRM concerns the size of the company. Generally, a greater company offers more and a wider

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19 A mother is even allowed to fight in court for a spot in a public childcare facility (Müller and Wrohlich 2014).

range of policies aiming at an improvement of the reconciliation of family and work (BMFSFJ, 2013b). There are two potential reasons for the non-significance of the size of the company in this context. Firstly, the availability of HR policies is unequal to the usage of them. While it is probably the goal of a provider of on-site childcare to exploit all free spots, other kinds of ESCC might be promoted primarily for marketing reasons (Mohe et al., 2010). Secondly, gift exchange appears to be robust to increases in the size of the employees, meaning that the effect of the gift does not depend on the relation between the gift giver and the size of the beneficiaries (Maximiano et al., 2007). In this context, it would imply that the effects of ESCC on individual labor supply does not change if a greater number of mothers are using it. The distance between the living place and working place, in other words the commute, is also of concern. Weßler-Poßberg (2014) observed that several mothers preferred childcare facilities which are close to their living place, since children are able to meet their classmates and it eases post-work pick-up. It might be that parents facing a long ride to the work place organize local childcare without considering ESCC at all. Hence, providing ESCC at their workplace would not alter their behavior. Pre-tests according to occupational groups revealed no significance in regards to occupation, which is in line with Stuth et al. (2009), but rather its characteristics. In addition several interactions between the variables of the hypothesis have been tested, like distinct economic sectors in combination with irregular working times. However, biased results lead to their excluding here.

Section 2.1 „Male, female and maternal LFP" has concluded with the observation that the gender wage gap is resulting from the three dimensions gender time gap, vertical, and horizontal separation (Allmendinger, 2010). It is unlikely that horizontal separation is influenced by ESCC since it is introduced after the occupation is chosen and therefore not relevant. Regarding the vertical separation, it has been revealed that star employees are neither the primary target group of ESCC nor increasing their employment rates due to ESCC. Female employees with strong career ambitions push for advancements without reliance on ESCC. However, it might be that the gender-time gap decreases due to ESCC slightly, since mothers may shift their date of re-entry to work or increase their working volume. This could mean more likely promotions or tasks with more responsibility for this mother, showing a delayed effect of vertical separation. Moreover, it can be assumed that the gender-wage gap might converge immediately slightly due to the increased labor supply. Thereby, it should be remembered that this effect may be small, since only a small degree of mothers is using it early on, and not all employed mothers even want to use it.

Altogether, the results have demonstrated that the perceived working environment is a major determinant for the maternal labor supply. This conclusion is in line with other studies on maternal employment (Casper et al., 2002). ESCC can be regarded as one determining factor shaping the working environment. Inter alia, ESCC promotes that the private life of the mother is an issue at the workplace. While the presumed mixing of private and working lives might be one factor, it has also been proven that the working atmosphere itself can (dis-)courage labor

supply. These observations are in line with Lutz (2014), who concludes that "deficits of subjective welfare at the workplace are compensated for by turning to the family, which in turn accelerates family formation" (Lutz, 2014, p. 52). While her observations are based on the transition to parenthood, the present results refer to the transition to employment after becoming a parent. In both cases, the employment mode has been identified as a major determinant for the interaction of parenthood and employment, implying that the focus on the welfare state needs to be extended.

8. Conclusion

This thesis explored ESCC. Throughout the last century, ESCC has been provided by companies to their employees as an amenity. However, it was merely a benefit of minor impact. In recent years, still a rather minor issue in the field of childcare studies, it acquired substantial attention mainly due to the growing importance of the reconciliation of family and work. This thesis investigated the role of ESCC for maternal labor supply employing gift-exchange theory, a theory rooted in the fact that an employer is able to raise work norms by paying workers a gift in excess of the required minimum in return for an effort above the minimum required. Previously, gift-exchange theory has rarely been used in the context of maternal labor supply, which required that the theoretical framework be extended systematically by adding several factors that may be influencing maternal labor supply.

The main results of the thesis can be summarized as follows. Mothers re-enter work faster when the employer is providing ESCC before giving birth. For instance, around 24 months after childbirth, above 75 percent of mothers employed in companies with ESCC and 47 percent of the mothers employed in companies without ESCC are entering employment again. Furthermore, there is a substantial shift of mothers working part-time instead of having a minijob after childbirth. The working volume of mothers is positively influenced by ESCC when the mothers are actually using it. The effect is higher for the actual than the agreed working time. The mere availability of, or use by a partner of ESCC do not influence the working hours positively. Concerning the hypothesis, the main implications are as follows: Firstly, the section on company policy and administration showed that the usage of HR policies rather than the availability of HR policies makes a great difference. The usage of further HR policies in combination with ESCC influences maternal labor supply positively. Furthermore, the effect of an efficiency wage for the maternal working volume seems to depend on the economic sector. While the mothers working in the knowledge-based sector do not react to ESCC at all, mothers employed in the manufacturing sector and service sector increased their working volume due to ESCC. Concerning the factors in personal life, the irregular working time as well as flexible working arrangements show distinct results for each dimension. Furthermore, it has been confirmed across all specifications that mothers who are satisfied with their salary are more likely to increase their labor supply due to ESCC.

This thesis contributes to ongoing conversation in extending previous research and scholarship literature on ESCC. Focusing on Germany, this is the first study exploring the causal relationship between ESCC and maternal labor supply. Previous studies focusing on the German market used personnel data of companies exclusively, to present the situation at hand with descriptive statistics. The work at hand had questioned the classification of ESCC as an institutionalized childcare alternative to public childcare and added an extensive set of factors to investigate discursively the ESCC in relationship to various components. This analysis marks

the first attempt to apply gift-exchange theory to a subject in family economics. The gift-exchange approach provided significant insights and new angles to this topic, which is especially remarkable since gift-exchange theory was developed to explain unemployment as a macro-level challenge.

Two-third of the working mothers with young children would prefer to increase their working volume (Lauber et al., 2014). The analysis has revealed that improper childcare arrangements are not the main reason for the choosing ESCC and increasing their working hours afterwards. It seems that the working environment is shaped in a way that the usage of ESCC provides additional incentives to work more. In case of re-entering employment, the working environment can be predominantly perceived as the direct surroundings and personal working conditions (BMFSFJ, 2008). In case of the working volume, the working environment may refer to the general working attitude, formed by standards in the economic sector. ESCC per se, thus, does not lead to a closure of the gap between actual and agreed working time, but its perception as a concessive policy for the reconciliation of family and work has the potential to do so.

An increased working volume of mothers has positive effects on the current and future financial situation of the employee. It should be noted that the impact on actual working hours is higher than the effect on the agreed working hours. Whether possible overtime is paid or unpaid thus becomes an important factor. While it is outside the scope of the thesis to evaluate this, unpaid overtime might be especially undermining for mothers since they cannot spend time with their children and they do not earn additional money to ensure their well-being. As a consequence, it can be questioned whether the overtime is voluntary, due to a great intrinsic motivation, or due to an informal enforcement by superiors. Even if overtime is voluntary but unpaid, it would be advantageous for the mother to adjust the actual working time to the agreed working time (Müller, Neumann, & Wrohlich, 2015). In the light of gift-exchange theory, it could be augmented that the reciprocate behavior of the mothers due to ESCC cannot be exclusively regarded as good will, but also as a response to informal expectations. In this case, future research is required to assess whether the increase in the actual working time can be interpreted as a gift-exchange.

Before addressing the concrete implications for the employer and the state, one can surmise that the usage of ESCC has a positive effect on the maternal labor supply. However, albeit offered, it often remains unused. It is one task of further research to investigate whether the employees cannot use it (time restriction, available spots, etc.) or choose not to use it. Certain implications can be drawn independent of this concern.

Since the mere provision of ESCC does not directly influence maternal labor supply, employers aware of the potential of working volume by employed mothers need to pursue a comprehensive approach of promoting the reconciliation of family and work. Based on the here presented results, the perceived support expressed through direct supervision or beneficial HR policies are one way of doing so. However, it seems that there are also factors shaping the working environment outside the actual influence of the employer. Since it has been demonstrated that

the effect of efficiency wages depends also on the economic sector in general, employers need to be aware of underlying working attitudes. For instance, awards are especially effective in increasing work motivation in the public sector (Frey et al., 2013). Focusing on on-site childcare, the organization of a company-owned facility requires a substantial amount of long-term planning. Smaller companies rather cooperate with other companies than providing their own. Even for large companies, full capacity might not always be reached (BMFSFJ, 2013a). This analysis shows no proof that all mothers offered ESCC would choose to use it. Hence, it is advisable for a company to rent public childcare spots, since renting rather than providing childcare includes far less responsibility. While this analysis has aggregated the effects of on-site childcare and renting childcare spots, it would be interesting to evaluate whether the importance of the perceived working environment has the same meaning for both kinds of childcare.

Finally, the implications for the state as the predominant provider of childcare (Thater, 2015) need assessment. Arguing whether ESCC and public childcare can be regarded as complementary or substitutional requires the consideration of the following aspects: the quantitative distribution of less than four percent of the children visiting ESCC compared to public childcare facilities with over 90 percent reveals the numeric inferiority of ESCC (BMFSFJ, 2014; Seils & Kaschowitz, 2015); public childcare has been institutionalized within the society independent of other providers such as churches, or non-profit organizations (Thater, 2015). The expansion of ESCC is frequently discussed in the media, highlighting the difference between public childcare and company childcare, addressing the mixing of private and working lives, which is rather uncommon in German society (Brewster et al., 2010). The improvement options in public childcare are limited, and equally, there is no legal mandate for the expansion of ESCC as it is offered voluntarily. Considering both public childcare and ESCC, this thesis does not see them as acting complementary. Including family-related care in the equation, however, alters the analysis. Chapter 2, for example, has shown that several mothers combine institutionalized and family-based care, whereby it probably does not matter whether the institutionalized care includes ESCC and/or public childcare. In this case, ESCC and public childcare can be regarded as substitutes. Independent of the distinct classification of ESCC, the subsidies by the national government for on-site childcare might be a positive way to support maternal labor supply (BMFSFJ, 2013a). It cannot be stated whether the subsidies by the state are the (one) reason for employers to offer on-site childcare. Nonetheless, the program shows employers the importance of offering policies encouraging mothers with young children to take time off during employment. The program is in line with the paradigm shift introduced alongside the parents' money reform in 2007.

It can be concluded that there is a substantial positive influence of ESCC on the work behavior of mothers. The results should nevertheless be seen in the light of limitations. The results do not include data about why mothers choose ESCC over public childcare alternatives. While the hypotheses and control variables provide several hints, a qualitative approach could deliver additional important insights

(Babbie, 2015). Focus groups of mothers could be asked why they do not use ESCC when it is available, responses providing clarity and incentives to deepen research in this field. A qualitative approach could also refer to the conclusions derived from the analysis on the re-entry to work. Do mothers agree that employer concession in general are more important when re-entering employment than the distinct individual HR policy? It may also be asked whether the working conditions are too strict to provide the freedom to react above average on external incentives (for instance when working on an assembly line).

The discussion has revealed that the gift-exchange theory seems to be applicable in this context. This allows this research with its focus on labor supply to provide an important addition to scholarship on the effects of family-friendly HR policies on the working attitude. Whether the operationalization of extra effort or productivity according to the gift-exchange approach is suitable in terms of questions regarding the re-entry to work or working volume could be assessed as a result. In this context, it should be highlighted that Herzberg et al.'s hygiene factors could be extended by further determinants. For instance, the attitude of a mother towards the role of women in society in general could be included. Data available do not allow the inclusion of this variable in this kind of analysis. The focus of this thesis was the analysis of the effects of efficiency wages of maternal labor supply, not the question whether mothers should work at all, but rather if they want to increase their labor supply due to a supportive environment.

One limitation of the prevailing analysis lies in the fact that mothers might be restricted in choosing their preferred working time by the employer. For instance, the economic or personnel situation of the company does not allow to expand the working hours.

Furthermore, there are some data limitations, which should be mentioned. Firstly, the literature review has highlighted that a differentiated analysis of childcare aspects would be useful. Quality aspects in terms of the teacher/children ratio or opening hours could deliver important insights for the analysis at hand. While several questions are included on these aspects, a large quantity of missing values gave reason to include the aggregated variable on general childcare satisfaction in the empirical analysis. The dimension of job security of Herzberg et al. could not be included since it refers to the external economic situation, which is not covered in the dataset. The discussion of the results has shown that the working schedules of the father can inhabit substantial importance. For instance, it matters whether he has regular working times or not. Furthermore, some variables, which would preferably be included in the analysis, could not be utilized as the data provision is sporadic (for instance perception of stress at home vs perception of stress at work).

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Appendix

Appendix A: Overview on impact of ESCC on work behavior

Author (year)	Country	Research question	Data and method	Operation. of ESCC	Theo. framework	Results	Limitations & implications
Anderson & Geldenhuys (2011)	South Africa	Effect of company-owned kindergarten on absence & turnover	- Personnel records of two companies: one with kindergarten, one without - 216 participants - Data of 2008 Multivariate linear regressions	Company-owned kindergarten	No theoretical framework	- Lower employee absenteeism and turnover rates - No difference between those who use the available facilities and those who do not	- No differentiation between mothers and fathers - No panel data - No theoretical framework
Babu and Raj (2013)	India	Impact of childcare assistance on employee retention	Survey among 300 managers from the Ten IT companies 2012 OLS regressions	Generally childcare assistance	Spillover theory (Leiter & Durup, 1996)	Employee retention score increases proportionately when the average childcare assistance score increases	- No differentiation between mothers and fathers - No panel data
Barel, Fremeaux & Michelson (2010)	France	Relationship between work–family conflict and of employer-driven child care initiatives	- Survey among 300 employees in a shopping center - data of 2003 Multivariate linear regressions	On-site childcare	Work-life boundaries (Greenhaus et al, 1987)	-Positive but not overwhelming support - Some employees do not value it, even if personal situation may suggest it -Attitudes towards role of organization & personal constraints matter	- No differentiation between mothers and fathers - No panel data

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Author (year)	Country	Research question	Data and method	Operation. of ESCC	Theo. framework	Results	Limitations & implications
Casper & Buffardi (2004)	USA	Impact of dependent care assistance on applicants intentions	- Survey among people, who are searching for a job, or who acquired a new one up 3 months ago - 371 participants - Data of 2002 Moderated regressions	Dependent care benefits: aggregation of On-site childcare center & services to assist with dependent care needs & personal and work concerns.	Organizational support theory (Eisenberger, Fasolo, & Davis-Lamastro, 1990)	- Dependent care assistance has a great significant impact on anticipated organizational support - Universal appeal of dependent care assistance	- No differentiation between mothers and fathers - No panel data
Commerzbank (2009)	Germany	Economic effects for company due to introduction of own kindergarten	- Personnel data of company & qualitative questionnaires with employees, managers, teachers etc. - Panel data: 2005–2007 Not stated	Company owned kindergarten		-faster return-to-job: (2004: 30,6 months, 2007: 19,3 months) -family-related missing work days decreased by 4,5 days	- No theoretical framework - No causality tests - N not known - Short time period - Did not consider introduction of "Elterngeld" - No differentiation between mothers and fathers

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Author (year)	Country	Research question	Data and method	Operation. of ESCC	Theo. framework	Results	Limitations & implications
Connelly, Degraff & Willis (2002)	USA	Parental choice when on-site center is available	-Three firms: two offer on-site childcare, one not -904 participants - Qualitative & quantitative interviews/ questionnaires – Data of 1996 to 1998 Descriptive statistics	On-site childcare	Economic theory of benefit maximizing	-Substantial number of parents will choose on-site care center when it is available. -Positive factors: location, convenience, reliability	- No differentiation between mothers and fathers - No causality tests
Divine-Hawkins & Collins (1983)	USA	Effects of corporate childcare on work behavior	-Survey among 415 employers -Data of 1981 and 1983 Descriptive statistics	All kinds of corporate childcare	-	- Corporate childcare decreases turnover and absenteeism among all employees -Positive effect on recruitment -1/5 of companies said no effect	- No tests for causality - No theoretical framework
Ezra & Deckman (1996)	USA	Effect of on-site childcare on better balance between work and family?	-1991 Survey of Federal Employees -28329 observations -Data of 1991 OLS regression	On-site childcare		-the use of on-site childcare and flextime had a significant impact on mothers' satisfaction with their childcare arrangements - 25 percent said that they were interested in having on-site childcare center	- No panel data - No theoretical framework

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Author (year)	Country	Research question	Data and method	Operation. of ESCC	Theo. framework	Results	Limitations & implications
Feierabend, Mahler & Staffelbach (2011)	Switzerland	Spillover effects of a family-supportive work environment on employees without childcare responsibilities	- Swiss Human-Relations Barometer survey - 1260 randomly selected employees -Data of 2009 Multivariate linear regression	Generally childcare support by company	Organization-person-fit theory (Turban & Keon, 1993), incentive-contribution-theory (March et al., 1958)	Whereas family supportive services have a specific positive effect on employees with childcare responsibilities, family-friendly culture and dialogue do affect the whole workforce positively	- No panel data - No differentiation between men and women
Feierabend & Staffelbach (2015)	Switzerland	Organizational commitment and intentions to quit of parents in companies with/without corporate childcare	- Swiss Human-Relations-Barometer - Survey data taken from 414 working parents - Data of 2010 Multivariate linear regressions	No distinction between company-owned kindergarten, subsidizing external public childcare facilities or vouchers for parents	Social exchange theory (Blau, 1964), organizational support theory (Eisenberger, Fasolo, & Davis-Lamastro, 1990)	Working parents in companies with their own childcare services show higher organizational commitment than parents in companies without this support	- No knowledge whether parents used the corporate childcare or not, but just whether company provided it - No differentiation between mothers and fathers - No panel data

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Author (year)	Country	Research question	Data and method	Operation. of ESCC	Theo. framework	Results	Limitations & implications
Goff, Mount & Jamison (1990)	USA	Relation among ESCC, work/family conflict and absenteeism	-Personnel data -952 employees with children below five years, 175 used corporate childcare -Data of 1984 Path analysis with multiple regression	On-site childcare	Role conflict (Greenhaus and Beutell, 1985)	-No evidence that on-site childcare reduces work/family conflict and absenteeism of employed parents	-No panel data
Grover and Crooker (1995)	USA	Impact of childcare assistance on organizational attachment	-General Social Survey - 745 randomly selected workers -Data of 1991 Hierarchical regression	Aggregate of "information about childcare services in the community" and "assistance with the costs of day care for children"	Organizational attachment (Mowday, Porter, & Steers, 1982)	-Employees showed significantly greater organizational commitment and significantly lower intention to quit their jobs -All employees show more attachment, even those who do not benefit	- No differentiation between mothers and fathers - No panel data

Author (year)	Country	Research question	Data and method	Operation. of ESCC	Theo. framework	Results	Limitations & implications
Gullekson, Griffith, Vancouver, Korner & Cohen (2014)	USA	1)Relation employee retention & childcare 2) Whether the type of childcare assistance program matters	-Personnel data: employees in a hospital -148 participants - Panel data with two years Multivariate linear regression	1)On-site childcare 2) On-site childcare vs childcare voucher program	Social exchange theory (Blau, 1964)	1) Employee performance was higher and absenteeism lower for employees using the on-site childcare center than employees using an off-site center or with no children 2)No difference between both childcare programs	- No differentiation between mothers and fathers
Hoobler (2007)	USA	Status of working mothers due to ESCC provision	Qualitative argumentation	All kinds of ESCC	Social identity theory	Family-friendly policies reinforce gender biases that degrade women's status on the job because women are the primary users of on-site childcare services.	-No quantitative evidence of qualitative argumentation
Lehmann (2011)	Germany	Effect of corporate childcare assistance on business performance and vice versa	-Data of 2008 -IAB dataset 2SPLS estimations	Question: Does the company offer corporate childcare assistance?		Business success is conducive for supply of corporate childcare but not vice versa	-Macro level and not micro level - Employees just analyzed as aggregated term

Author (year)	Country	Research question	Data and method	Operation. of ESCC	Theo. framework	Results	Limitations & implications
Lehrer, Santero & Mohan-Neill (1991)	USA	Effect of employer-supported childcare on annual hours work and attachment to the employer	1988 Biennial Survey of Illinois Registered Nurses OLS regressions	Aggregation of "Childcare information and referral, on & off site childcare, assistance with childcare expenses, sick childcare services"		Significant positive effects on both	- No theoretical framework - No differentiation between mothers and fathers - No panel data
Morrissey & Warner (2011)	USA	Employee selection into ESCC voucher program	-949 participants -Employees at one larger university -Data of 2007 A five-step hierarchal random effects logistic regression procedure	Employer's childcare voucher program		Employees who were most in need of childcare assistance in terms of family structure, job type, and childcare expenses were more likely to receive vouchers.	- No theoretical framework - No differentiation between mothers and fathers - No panel data

Author (year)	Country	Research question	Data and method	Operation. of ESCC	Theo. framework	Results	Limitations & implications
Nowak, Naude & Thomas (2013)	Australia	Maternal return to work due to employer support	-Open-ended qualitative questionnaire - 388 respondents Department of Health, Western Australia and one private sector healthcare provider Descriptive assessment and qualitative analysis	Employer-support with childcare in general		A significant amount of nurses would return earlier to work after childbirth if there were e.g. rooms to breastfeed	- No theoretical framework - No differentiation between mothers and fathers - No panel data
Rathasingram et al (2012)	USA	Effect of on-site childcare on work outcomes	-Personnel data: Public university -143 participants Hierarchical linear regression analysis	Availability of on-site childcare	Organizational support theory (Eisenberger et al., 1986), which is grounded in the social exchange perspective (Blau, 1964)	On-site childcare could have negative effects on employee productivity and satisfaction if is not high quality and paired with organizational support for family life	- No differentiation between mothers and fathers - No panel data

Author (year)	Country	Research question	Data and method	Operation. of ESCC	Theo. framework	Results	Limitations & implications
Roehling et al (2001)	USA	Effect of childcare policies on employee loyalty and life-course perspective	-Telephone survey among random sample from National Study of the Changing Workforce -Data of 1992 -3381 respondents Multivariate linear regressions	Childcare index was created by five items assessing whether the participant's employer provided six childcare related benefits	Social exchange theory (Blau, 1964)	-Positive relationship among women with school-aged children -No evidence for women without children or with pre-school age children -Strong relationship between childcare policies and loyalty among older women with no children	- No panel data
Rothausen, Gonzalez, Clarke & O'Dell (1998)	USA	Effect of on-side childcare on work behavior	-271 employees: current or past users of on-site childcare -Company data -Data of 1996 Hierarchical regression analysis	On-site childcare	Organizational justice theory (Greenberg, 1987)	-On-site childcare has no significant effect on the working attitude or job satisfaction - Employees with current or future needs for childcare believed that on-site childcare would facilitate recruiting more so than those without childcare needs	- No differentiation between mothers and fathers - No panel data

Author (year)	Country	Research question	Data and method	Operation. of ESCC	Theo. framework	Results	Limitations & implications
Then, Münscher & Stahlschmidt (2014)	Germany	Monetary effect of introduction of BASF kindergarten	- Online survey among BASF employees - Data of 2006 to 2011 - 851 participants (114 users) – Matching approach, but not clearly stated	On-site childcare	Social return on investment	Parents with children in on-site childcare work 3 months more than parents, whose children do not use it	- Small N - Method not clearly explained - Online survey was just made in 2011 - No tests of causality - Did not consider introduction of "Elterngeld" - No differentiation between mothers and fathers
Zeytinoglu et al (2010)	Canada	Relation employer supported childcare and intention to stay in a company	- Statistics Canada's Workplace and Employee Survey - 20,834 employees from 6,565 workplaces - Data of 2003 - Descriptive statistics and logit and logistic regression analysis	Survey: Does employer offer help for childcare through on-site center or assistance with external or informal arrangements?	Workplace flexibility work-life balance (Lewis, Gambles & Rapoport, 2007)	Employees are more likely to remain with an organization that offers workplace childcare support programs; and those employees who actually use the workplace childcare support are even more likely to stay with the organization	- No panel data

Appendix B: Description: Fixed effects

Panel data includes subsequent observations for individuals, which allow the analysis of changes over time. Thereby, one is able to control for variables, which change across observations, but not over time (for instance gender). Furthermore, the data allows the consideration of factors which cannot be included for practical reasons. For instance, unobservable factors like cultural attitudes differ from one individual to another individual, but less likely over time. Consequentially, changes in the dependent variables cannot result in omitted variable bias, under the condition that the variable does not change over time. The technique for controlling this challenge within regression frameworks is called FE.

Basically, using FE models addresses the assumption implying that features of the observations could impact the dependent variable, which in turn might bias the results by removing the effect of those characteristics from the dependent variable. The starting regression framework for FE is

$$Y_{it} = \beta_0 + \beta_1 X_{it} + \beta_1 Z_i + \varepsilon_{it} \qquad (1)$$

Whereby Y_{it} denotes the dependent variable, X_{it} denotes the independent variable and ε_{it} is the error term, including the subscript i refers to number of individuals and t refers to the time periods. Z_i shall exemplary demonstrate an unobservable variable changing across individuals, but not over the time periods. The goal is to acquire an estimate for β_1, which can be interpreted as the effect of X on Y, holding constant Z. This intended interpretation can also be rewritten as having individual intercept n for each state

$$Y_{it} = \beta_1 X_{it} + \alpha + \varepsilon_{it} \qquad (2)$$

whereby here $\alpha_i = \beta_0 + \beta_2 Z_i$ going from 1 to n_i represents the intercept for each individual observation. As a result, the slope coefficient is the same for all individuals, however it is different and it is not correlated with the intercepts between the individuals (Stock & Watson, 2012, p. 397).

Using FE, the following assumptions remain. Firstly, the conditional mean of the error term in the present and past is zero. As already indicated above, this implies that there are no omitted variables biases. Secondly, it is assumed that simple random sampling is applied to randomly select the sample from the population. It is however not required that the entities are identically and independently selected over time. The third assumption implies that X_{it} and Y_{it} have finite fourth moments. Fourthly, it is assumed there is no perfect multicollinearity.

Appendix C: Overview of German studies on further effects of ESCC

Data	Dimensions of analysis:	Main results	Limitations of study
		Then et al. (2014)	
Online survey among employees: 3000 employees should take part, 851 took part, 114 LuKids parents among the respondents. Time span: 2006–2011	For provider (employer): 1)Return-to-job 2)amount of working hours 3)motivation of employees 4)reputation as employer and reduction of illness not analyzed For parents: 1)salary 2)level of stress 3)satisfaction with childcare For the state: 1)increasing tax income 2)additional social security disposals 3)savings for parents money	For provider (employer) (if all 60 places are used): 1+2) -reduction long-term absenteeism 764,000€/year -reduction short-term absenteeism 115,000€/year -reduction reclassification costs: 13,000€/year 3)higher motivation, less stress, For parents 1)additional income 355,000€/year 2+3)significantly better For the state: 1)tax income: 157,000€/year 2)social security disposals: 226,000€/year 3)savings for parents money: 35,000€/year	-small N -methods esp. matching not clear -did not consider introduction of parent's money in time span of analysis, which probably influenced behavior of parents -have all kindergarten spots been filled?
		Commerzbank (2009)	
Personnel data & qualitative questionnaires with employees, managers, teachers etc. Time: 2005–2007	1)Relief of families. stress level 2)Pedagogic effects 3)economic effects for company 4)different perceptions of women and men	1)long opening hours (twelve hours/day) for every kind of worker 2)children feel at home at institutes 3)-costs for company: 571,000 Euro, benefits: 702,000 Euro -> 23% return on investment -faster return-to-job: (2004: 30.6 months, 2007: 19.3 months) -family-related missing work days decreased by 4.5 days -various positive soft effects (e.g. increase in motivation) 4)fathers' participation in childcare (or taking more responsibility in this field) increased	-no tests of causality -did not consider introduction of parent's money in time span of analysis, which prob. influenced behavior of parents

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Zusammenfassung in Deutsch

Die vorliegende Abhandlung befasst sich mit der Analyse der Effekte von betrieblicher Kinderbetreuung auf das Arbeitsverhalten von Müttern. Der Ausgangspunkt dieser Analyse ist, dass viele Mütter mit geringem Volumen arbeiten, aber zwei Drittel der Mütter würden gerne ihr Arbeitsvolumen erhöhen. Fehlende Kinderbetreuung ist der Hauptgrund für die Reduzierung der Arbeitszeit. Dies liegt unter anderem daran, dass die öffentliche Kinderbetreuung quantitative und qualitative Defizite aufweist und private Kinderbetreuung als Alternative sehr teuer ist. Seit einiger Zeit bieten Unternehmen zusätzlich Kinderbetreuung an. Als Arbeitgeber haben Unternehmen Interesse an einer Erhöhung des Arbeitsvolumens ihrer Mitarbeiter. Das Ziel der Abhandlung ist die Identifikation des Effektes betrieblicher Kinderbetreuung auf das Arbeitsvolumen von Müttern.

Die bisherige Literatur zu den Effekten betrieblicher Kinderbetreuung bezieht sich vorrangig auf alle Arbeitnehmer und nicht explizit auf Mütter. Es kann erwartet werden, dass eine differenzierte Analyse für Mütter neue Einblicke liefert. Des Weiteren wertete ein Großteil der Studien zu diesem Thema deskriptive Statistiken aus, sodass die Identifikation eines kausalen Effekts bisher nicht im Fokus stand.

Der theoretische Rahmen baut auf dem *Gift-Exchange*-Ansatz von Akerlof (1982, 1984) auf. Diese Theorie beinhaltet soziologische Elemente in der Erklärung von Effizienzlöhnen und bezieht sich auf den Tausch sozialer Interaktionen zwischen Arbeitnehmern und Arbeitsgebern. Hier werden die Beziehungen als *Geschenke* angesehen. Demzufolge erbringen Arbeitnehmer eine höhere Arbeitsleistung, wenn sie vom Arbeitgeber mit einem höheren (unerwarteten) Lohn *beschenkt* werden. Der Lohn muss dabei nicht in materieller Form sein. Im Kontext dieser Arbeit wird betriebliche Kinderbetreuung als *Geschenk* des Arbeitsgebers interpretiert, welches zu einer Erhöhung der Arbeitszeit von Müttern führen soll. Diese Theorie wird zusätzlich von der Zwei-Faktoren-Theorie von Herzberg et al (1959) ergänzt. Die Literaturübersicht hat dargestellt, dass das Arbeitsvolumen von Müttern von einer Vielzahl an Faktoren abhängt und nicht nur von personalpolitischen Maßnahmen des Arbeitsgebers. Herzberg et al (1959) argumentieren, dass verschiedene Faktoren dazu führen, ob ein Arbeitnehmer seine Arbeitsleistung erhöht. Diese Faktoren wurden verwendet, um systematisch Hypothesen abzuleiten.

Das methodische Vorgehen dieser Studie ist wie folgt. Es wird eine quantitative Analyse anhand des Familien-in-Deutschland Datensatzes durchgeführt, welcher als einer der wenigen repräsentativen Datensätze Variablen zu betrieblicher Kinderbetreuung beinhaltet. Das Arbeitsangebot von Müttern wird auf zwei unterschiedliche Arten gemessen. Erstens wird die Dauer der Arbeitsunterbrechung von Müttern nach der Geburt eines Kindes gemessen. In diesem Kontext wird ebenfalls untersucht, mit welchem Arbeitsvolumen Mütter nach der Geburt des Kindes in den Beruf zurückkehren. Der zweite Teil der Analyse befasst sich mit dem Arbeitsvolumen

von Müttern mit kleinen Kindern. In beiden Komponenten der empirischen Analyse wird untersucht, ob sich das Arbeitsvolumen von Müttern, welche in Unternehmen mit betrieblicher Kinderbetreuung beschäftigt sind, von dem Arbeitsvolumen von Müttern, welche in Unternehmen ohne betriebliche Kinderbetreuung arbeiten, unterscheidet. Verschiedene ökonometrische Verfahren werden verwendet, um den potentiellen Unterschied als kausalen Effekt zu interpretieren. Eine Ereignisanalyse wird für die Rückkehr in den Beruf verwendet. Das Arbeitszeitvolumen wird anhand einer Kombination von Matching-Verfahren und Difference-in-Difference-Schätzungen gemessen.

Die Ergebnisse lassen sich folgendermaßen zusammenfassen: Mütter beenden ihre Arbeitsunterbrechung schneller, wenn der Arbeitgeber betriebliche Kinderbetreuung anbietet. Des Weiteren kann beobachtet werden, dass die Wahrscheinlichkeit von Minijobs mit der Bereitstellung von betrieblicher Kinderbetreuung sinkt, da Mütter anschließend primär Teilzeit arbeiten. Vollzeit arbeitende Mütter lassen sich durch betriebliche Kinderbetreuung nicht beeinflussen. Das Arbeitsvolumen von Müttern mit kleinen Kindern wird positiv beeinflusst, wenn die Mutter das Angebot auch nutzt. Die alleinige Bereitstellung oder die Nutzung der Betreuungsangebote durch den Partner haben keinen positiven Effekt auf das Verhalten der Mutter. Der positive Effekt zeigt sich insbesondere bei der realen Arbeitszeit inklusive Überstunden im Vergleich zu den vereinbarten Arbeitsstunden.

Des Weiteren zeigt sich, dass die Inanspruchnahme weiterer personalpolitischer Maßnahmen in Kombination mit betrieblicher Kinderbetreuung einen verstärkten positiven Effekt aufweist. Dieser Effekt ist nicht nachweisbar, wenn andere Maßnahmen vorhanden sind, aber nicht genutzt werden. Der Effekt des Effizienzlohns betrieblicher Kinderbetreuung auf das Arbeitsvolumen ist außerdem von dem vorliegenden Wirtschaftszweig abhängig. Während keine Effekte in wissensbasierten Wirtschaftszweigen nachgewiesen werden können, zeigen sich positive Effekte für das verarbeitende Gewerbe sowie den Dienstleistungssektor. Je zufriedener eine Mutter mit ihrem Gehalt ist, desto größer ist der Effekt von betrieblicher Kinderbetreuung.

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