

First-time fathers' parental leave take-up in Luxembourg: a policy evaluation

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Declaration

I, Merve Uzunalioglu, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

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Disclaimer

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The data used in the thesis is extracted from Luxembourg Microdata Platform on Labour and Social Protection and provided by the General Inspectorate of Social Security [Inspection générale de la sécurité sociale (IGSS)]. The results and the opinions presented in this publication should be attributed to the author of the publication and do not reflect in any case the opinions of the IGSS.

Abstract

This thesis is set in contemporary Luxembourg and examines first-time fathers' parental leave trajectories during three phases: access to leave, leave take-up and negotiating the leave. Using social security records from 2009 to 2018, the thesis explores the impact of the 2016 reform, focusing on the interplays among workplaces, intra-household negotiations, and first-time fathers' take-up of parental leave.

The first study focuses on the change in eligibility criteria as part of the reform and tests whether eligibility translates into take-up when the right is newly granted. Analyses show an increase among marginal part-time working mothers' leave take-up but no significance for first-time eligible fathers' take-up. Eligibility remains a barrier for parents from non-European backgrounds.

The second study looks at the impact of the reform on fathers' leave take-up and analyses the role of intra- and extra-household factors. Findings show an average 20 per cent increase in first-time fathers' leave take-up. The change is driven by increased compensation. The impact is greatest for fathers working at small-size companies, fathers in the median to low-income quintiles, and in households where mothers have more financial resources than fathers.

The third study scrutinises the timing and duration of the leave. Results indicate that fathers tend to postpone their leave when they have greater socio-economic resources than mothers. However, mothers' workplaces appear significant, and greater maternal socioeconomic resources push fathers into earlier leave-taking and to take leave of a similar duration to mothers.

The thesis showed that parental leave take-up is a multi-dimensional behaviour that develops under multiple interactions across multiple spheres. Gender structures and ideologies are embedded in these interactions. There is a bidirectional relationship between fathers' parental leave preferences and

gendered workplace cultures. Macro-level policy change motivates progress towards gender equality; however, paternal engagement through parental leave-taking remains dependent on workplace support.

Impact Statement

This thesis studies first-time fathers' parental leave trajectories by examining the case of Luxembourg, focusing on a period before and after a recent parental leave reform. The thesis provides the first causal evidence of the impact of the 2016 parental leave reform on first-time fathers' leave take-up behaviours. Moreover, as the thesis uses the most recently available administrative data for the analyses, the findings are timely and policy relevant.

The thesis is established through three studies examining different phases of the parental leave take-up process. Setting off with access to leave, it continues with the analysis of take-up and finalises by scrutinising the initiation and duration of the leave take-up decision. The three studies build on each other and provide a comprehensive picture of the parental leave take-up process with the example of first-time fathers in Luxembourg.

In the analysis of parental leave, the thesis focuses on intra- and extra-household factors that shape first-time fathers' leave take-up decisions. In doing so, the thesis benefits from a large set of variables on workplace characteristics. Using fathers' and mothers' workplace characteristics concurrently, the findings bring about new evidence to the literature intersecting workplaces and parental leave.

Since the thesis has a single-country and single-policy focus, it examines the case thoroughly. The precision and depth of the analyses expand the existing knowledge base for parental leave literature. Using fathers' and mothers' data concurrently, the analyses give a comprehensive view of first-time fathers' parental leave trajectories. As the key policy evaluated in the thesis was enacted in December 2016, the findings directly contribute to the current

policy agenda. Moreover, it also has the potential to inspire scholars in other countries to investigate their future parental leave reforms.

A key finding of the thesis is that the macro-level policy reform has led to an upward shift in first-time fathers' parental leave take-up. However, this shift was limited without the support of workplaces. Consequently, a key message of the thesis is the necessity for a more substantial commitment from workplaces to transform from parental leave enabler places to parental leave promoters. At the micro-level, the findings support a large body of existing evidence: women's resources are essential in influencing fathers' parental leave behaviours and redistribution of labour in the household.

The findings suggested room for expansion in communication and promotion of the benefits of parental leave and increased paternal engagement in Luxembourg, which would resonate with different country settings too. In short, with its innovative and comprehensive approach and new empirical data, the thesis enriches current academic discourse and knowledge. Moreover, with new causal evidence about the 2016 reform, the thesis also expands ongoing policy discussions in Luxembourg.

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Having two lives in two countries was not always the easiest. I had an eventful, unusually mobile PhD experience. There were quite some people

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Abbreviations

CSA	Chèques service accueil [childcare service voucher]
EIGE	European Institute for Gender Equality
EU	European Union
FNR	Fonds National de la Recherche [The Luxembourg National Research Fund]
IGSS	Inspection générale de la sécurité sociale [General Inspectorate of Social Security General Inspectorate of Social Security]
ILO	International Labour Organization
LISER	Luxembourg Institute of Socio-Economic Research
MPT	Marginal part-time [work]
OLS	Ordinary least squares
PLR	Parental leave reform
PSM	Propensity score matching
TCRU	Thomas Coram Research Unit
UK	United Kingdom

Chapter 1: Introduction

First-time fathers' parental leave take-up in Luxembourg: The interplays among policy, workplaces, and households

1.1. Background

On December 1st, 2016, Luxembourg's parental leave reform came into effect. The reform was welcomed as part of the country's progress toward adopting more gender egalitarianism in the work–life reconciliation domain. This thesis discusses modern-day Luxembourg, focusing on the years between 2009 and 2018, to examine first-time fathers' parental leave trajectories in a time window that allows for a comparison between the periods before and after the 2016 parental leave reform. The overarching goal of this thesis is to examine first-time fathers' parental leave trajectories under two parental leave regimes via meso- and micro-level elements.

Since parental leave is an employment-related benefit, the interplay between workplaces and fathers' leave take-up behaviours, as well as their negotiations with their partners, constitute the foundation of the analyses in this thesis. Additionally, whether a gender-neutral policy can shift individuals' gender ideologies in gendered workplaces and how these interactions and gendering are reproduced are the principal questions that form the discussions in the chapters to follow. Furthermore, fatherhood, through the lens of parental leave, is studied in the context of Luxembourg in this thesis.

In this introductory chapter, I explain the motivations behind the focus on Luxembourg and first-time fathers' parental leave. I also outline the conceptual framework of the thesis.

1.1.1. The case of Luxembourg

Luxembourg is one of the wealthiest countries in Europe, with its per capita income recorded as 116,356.2 US dollars (approximately 107,000 EUR) in 2020 (The World Bank, 2022). In addition to being acknowledged for its wealth, the country is also characterised as conservative, with the predominant belief that men belong in the workplace and women should have the primary responsibility for domestic duties (Kerschen, 2019; Valentova, 2006). For example, until the early 2000s, the maternal employment level was low, and existing policies reinforced women's place in care provision rather than their engagement in the labour market (Bia et al., 2021). However, the turn of the new century was followed by a series of policies that successfully encouraged maternal employment, increasing it to a higher level.¹ However, achieving gender equality, particularly securing women's retention in the labour market, is impossible without intervening in men's work-life reconciliation strategies. Accordingly, the first two decades of the millennium showed a dynamic policy environment in Luxembourg.

There is a constitutional-level commitment to ensure gender equality in the country. Moreover, the Ministry of Equality for Women and Men (MEGA) – formerly known as the Ministry of Equal Opportunities – has specific missions dedicated to ensuring gender mainstreaming. In terms of meeting gender equality targets, the government has been paying special attention to parental leave policies. For instance, parental leave is mentioned in both the National Action Plans for Equality Between Women and Men 2009–2014 (Plan d'action national de l'égalité des femmes et des hommes) (Le Gouvernement du Grand-Duché de Luxembourg Ministère de l'égalité des chances, 2010) and the Coalition Agreement 2018 – 2023 (Accord de

¹ The details of Luxembourg's family policy scene, as well as information about maternal employment, are covered in depth in future chapters. To avoid repetition, therefore, only a short overview is presented here.

Coalition). The most recent agreement explicitly praises the 2016 reform and considers it as a success (Le Gouvernement du Grand-Duché de Luxembourg, 2018a):

La flexibilisation des périodes de congé parental et l'amélioration de ses modalités, ainsi que l'augmentation substantielle de l'indemnité de congé parental, introduites par la réforme en vigueur depuis le 1^{er} décembre 2016 ont connu un grand succès. Les effets positifs escomptés, tant sur la conciliation entre vie privée et vie professionnelle, que sur l'égalité des chances et sur le temps que les parents et surtout les pères ont à disposition pour l'éducation de leur enfant, ont été atteints. (p. 45)

[Making parental leave periods more flexible and improving the terms, as well as the substantial increase in parental leave allowance, were introduced by the reform in force since December 1st, 2016, and have been a great success. The effects of the expected benefits in terms of reconciling private and professional life, offering equal opportunities, and increasing the time that parents, and especially fathers, have at their disposal for the education of their child have been achieved.]

Moreover, the agreement (2018a) signals further developments in the form of expanding more flexible types of leave:

L'Etat versera les cotisations dues aux régimes d'assurance-pension respectifs. Après cette période, le ou les parents peuvent retrouver de plein droit leur emploi à temps complet. Pour promouvoir une répartition équitable des responsabilités en matière d'éducation des enfants, ainsi que dans un objectif d'égalité des chances, il sera envisagé d'accorder une période supplémentaire aux parents ayant tous les deux pris le congé parental. L'introduction d'un droit au temps partiel pour raisons familiales s'inscrira dans le cadre des réflexions en matière d'organisation et de temps de travail. (p.46)

[The state will pay the contributions due to the respective pension insurance schemes. After this period, the parent(s) can automatically return to their full-time job. To promote a fair distribution of child-rearing responsibilities, as well as with a view to equal opportunities, consideration will be given to granting an additional period to parents who have both taken parental leave. The introduction of a right to part-time

work for family reasons will be part of the reflections on organisation and working time.]

As seen in these excerpts, Luxembourg has a dynamic and progressive policy landscape, especially in the domains of work–life reconciliation and gender equality. Moreover, a parental leave regime with father-reserved leave periods fortifies Luxembourg’s commitment to promoting gender equality. However, the extent to which the policy achieves its intended goals and what roles the workplaces and intra-household negotiations play remain areas requiring exploration. Here, the availability of social security register data with specific variables recording eligibility for parental leave and leave take-up provides an opportunity to add new causal evidence to the examination of the policy reform because the reform has been welcomed, emphasises compensation and flexibility, and extends relevant policy actions. Accordingly, examining the details of the 2016 reform and focusing on first-time fathers’ parental leave behaviours are not only important but also timely.

1.1.2. Parental leave

The transition to parenthood involves a new set of responsibilities. When both parents are in paid employment, the arrival of a baby challenges their existing routines and forces them to adapt to a new phase in their lives. With the increased participation of women in the labour force and the expansion in work–life reconciliation policies, the contemporary two-parent household with young children now has greater opportunities to transform the gender division of labour compared to during the previous half of the past century (Wallace, 2002). However, each family is unique, and patterns of behaviour emerge when faced with similar life events and available resources (Burt, 1982; Risman, 2004).

Parental leave policies aid in the transition from a two-adult household to a two-parent household² by giving parents time to be with their young children while protecting their jobs and securing their return to the same position. Although enormously dependent on design, parental leave policies are considered gender equality measures. That is because they often target both parents, they disrupt (the idea of) the traditional division of care labour. They are also associated with retaining women's labour force participation and fathers' better engagement in the provision of care for their young children (Ciccia & Verloo, 2012; Dearing, 2016; Koslowski, 2021; Koslowski & O'Brien, 2022; O'Brien, 2009; Petts & Knoester, 2018). They also help to address children's care needs, parents' employment responsibilities, intra-household labour division, and employee retention for workplaces (Koslowski & O'Brien, 2022).

The current academic and policy debates surrounding parental leave policies are expanding toward more flexible and inclusive definitions of parenting leave (Koslowski & O'Brien, 2022). These definitions are also changing as new forms of families emerge. Despite acknowledging the liveliness of this field, the focus in this thesis is only on the parental leave take-up behaviours of two-parent, different-sex households. Furthermore, first-time fathers are highlighted because any behavioural changes that first-time fathers may experience during parental leave take-up can signal in which direction changes are occurring in the general preferences of society. Consequently, in this thesis, I interpret fathers as agents of change and aim to understand whether changes in the policy environment resonate with them and whether any behavioural change can be seen as a sign of advancements in gender equality in Luxembourg.

² Parental leave is, of course, not only for two-parent households. However, throughout this thesis, the focus is on two-parent, different-sex households. Hence, the literature and interpretations thereof follow this framework.

In contemporary societies in which dual-earner households are more prevalent than ever, parental leave policies are also seen as potential enablers of gender equality. However, both gender and masculinity are dynamic concepts that are constantly evolving. Moreover, they cannot be isolated from the institutions or the professional, social, and cultural environments in which they are formed (Connell, 1993; Sullivan, 2006). The dialectic nature of these relationships accordingly reinforces the necessity of workplace support for statutory parental leave opportunities as promoters of gender equality.

1.2. The construction of gender through parental leave

The study of fathers' parental leave take-up behaviours is inevitably a study on gender, masculinity, and fatherhood. Additionally, the multi-layered nature of parental leave makes it a concern not only for families themselves but also for workplaces and society in general. Nevertheless, the involvement of multiple actors indicates that parental leave occurs in an interactive environment. That is, from a national benefit to take-up, and from decision-making to actual leave-taking, the process is plural, multidimensional, interactional, and collaborative. Therefore, it fits well into the theory of gender structure (Risman, 1998; Risman, 2004). Additionally, because the reform created an expectation of change, I use Sullivan's writings on changing gender relations as guidance (Sullivan, 2006, 2016). Here, I discuss changes in gender relations through the lens of parental leave.

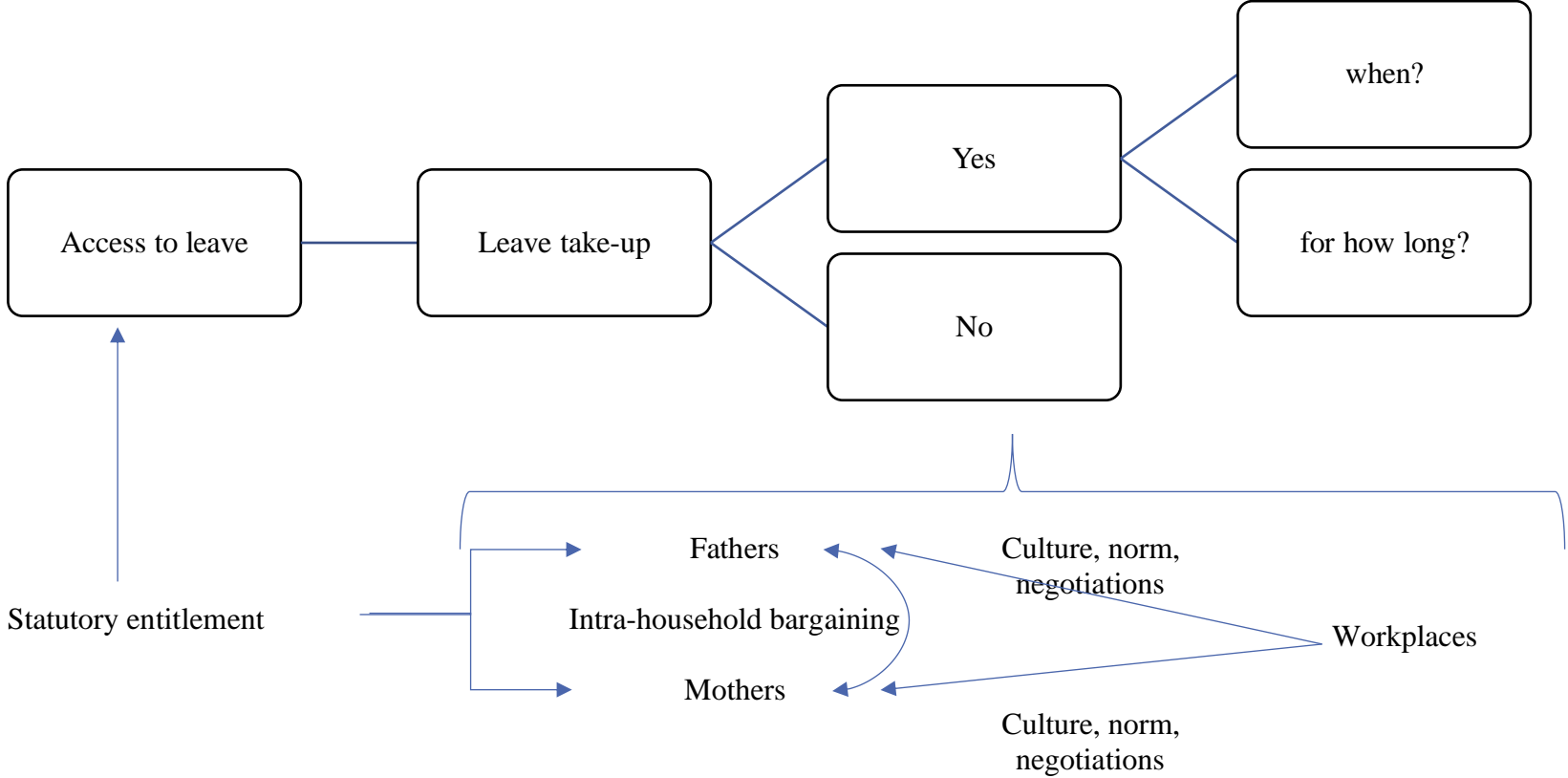
In the next chapters and the three studies of this thesis, I reference multiple theories and explain them all in detail. However, in this brief sub-section, I aim to outline how the construction of gender, or re-gendering, is an encompassing theme throughout the chapters, as well as how the idea of gender as a social structure and the value of incremental but steady change are relevant to this body of work.

By defining gender as a social structure, Risman (2004) situates gender ‘in the same analytic plane as politics and economics’ (p. 431). This positioning removes any hierarchical pre-conceptions and validates the significance of gender. Furthermore, parental leave suggests a change in pre-conceived gender roles and tasks, especially in the domestic sphere. Accordingly, as Sullivan (2006) suggests, gender can also be interpreted as a ‘situational accomplishment’ (p. 86). Therefore, a combination of these two interrelated approaches underlines the potent structure of gender and its reflection on individuals’ behaviours.

Sullivan’s (2006) term ‘embedded interaction’ is well suited to my interpretations of first-time fathers’ parental leave take-up (p. 109). The term ‘refers to the dynamic processes of the daily interaction between partners, embedded within their social and discursive context. [...] The daily processes of interaction have a recursive relationship, both with gender consciousness and with relational resources, and are also affected by the material resources of each partner’ (p. 110). Since the decision concerning parental leave take-up is negotiated in multiple spheres, gender is repeatedly being re-invented, reproduced, and reformed throughout these interactions.

Figure 1 below shows the key actors and interactions that conceptualise first-time fathers’ parental leave take-up. As the figure also demonstrates, by its nature, parental leave emerges in plurality with different actors’ involvement. That is, the interactions are multifaceted. From colleagues and managers at the workplace to partners in the household, parents need to coordinate with all of the parties with whom they share tasks.

Figure 1 Multidimensional embedded interactions behind parental leave take-up decisions



1.3. Data and methodological approach

1.3.1. Data

The entire thesis is based on social security register data that Luxembourg's Inspectorate of Social Security (L'Inspection générale de la sécurité sociale, IGSS) provided. However, the data request, access, and preparation were lengthy processes, and it took me nearly 18 months to start working with the data after the request for them had been submitted. Despite this late start, the data are rich and offer sufficient opportunities to develop the three key articles.

A key date for all analyses and, therefore, the thesis itself is December 1st, 2016, when the parental leave reform was enacted. From this date onward, the maximum observation period lasts from December 31st, 2018, until the point at which data were available for analysis. Ideally, this suggests a full 24-month observation window for the post-reform period. However, due to small sample size issues, all of the post-reform analyses are set to a pool of first-time fathers whose children were born between December 2016 and June 2017 (inclusive). Therefore, the group whose children were born in June only have an 18-month observation period. To ensure consistency here, I define the outcome measure as parental leave eligibility and take-up during the 18 months after childbirth. Hence, the post-reform analysis results correspond to the first 18 months after becoming a parent. This also means that the post-reform analyses can be interpreted as the short-term or immediate impact of the reform on first-time fathers' (or, where analysed, mothers') parental leave behaviours. Consequently, a key outcome variable is parental leave take-up during the first 18 months following childbirth.

All of the data include first-time fathers and their partners, the mothers, whose children were born between December 2009 and June 2017. Therefore, the data have an entire observation period that includes the old parental leave regime. The data here are structured to ensure that all of the fathers, mothers,

and children are linked to one another. Due to small sample size concerns, however, same-sex parents are not included in the analyses. Therefore, the analyses include only heterosexual, two-parent households residing in Luxembourg. Additionally, despite being eligible for parental leave and constituting about half of the labour force, cross-border workers are also excluded from the analyses due to the desire to have complete partner information. If the father works in Luxembourg, for example, but he and his family live in a neighbouring country and the mother is not employed in Luxembourg, the dataset will lack information about the mother's workplace and employment characteristics. Throughout the thesis, mothers' employment and workplace characteristics are used as explanatory variables to better understand the details of fathers' behaviours. Thus, the specific group of cross-border workers had to be omitted.

Similarly, due to the structure of the data and generally different behavioural tendencies, self-employed parents are excluded, despite their eligibility, because the eligibility for parental leave is calculated based on the number of working hours, which is a variable that employers report. Self-employed parents often lack this variable, and therefore, complete information about their parental leave status is missing in the data.

1.3.2. Methodological approach

Different analytical strategies are employed in each of the three studies. These are explained in detail for each study. The current section, therefore, does not include an exhaustive account of the methods used but, instead, provides a brief overview of what is detailed in the following chapters.

In the first study (Chapter 5), I employ probit regressions to analyse eligibility for parental leave and whether marginal part-time working parents who recently became eligible for parental leave have started taking it. This chapter works with the entire sample, including both the fathers and the mothers, and explains the determinants of eligibility for parental leave. Specifically, it

concentrates on the parental leave take-up behaviours of marginal part-time working parents during the post-reform period.

The second study (Chapter 6) uses a quasi-experimental design. It employs propensity score matching (PSM) to quantify the causal impact of the 2016 reform on first-time fathers' parental leave take-up behaviours. The analyses in this study benefit from different PSM models, as well as validation via additional OLS regressions. In addition to these analyses through which the reform's overall impact is measured, the study measures the heterogeneity of the impact of the reform across workplaces, income groups and co-parental relative resources.

The third study (Chapter 7) focuses on the pre-reform period only. It presents two analyses: The first utilises survival analysis to understand the timing of fathers' parental leave take-up, while the second benefits from multinomial logistic regressions for the analysis of the duration of fathers' parental leave.

1.4. The structure of the thesis

The thesis is designed around three studies, each with their own detailed literature review, methodology, and findings sections (Chapters 5–7). However, as this thesis has a single-country focus, utilises the same dataset, and works with the same policy across these three studies, I provide a general overview of the entire thesis in Chapter 2: Conceptual and Empirical Background. This chapter discusses the theoretical concepts that frame the empirical work conducted in the following chapters. Following this, in Chapter 3, I provide a literature review that examines the logic of parental leave policy, categorising the relevant literature into studies with macro-, meso-, and micro-level evidence. In Chapter 4, I explain the Luxembourg context in more detail. This review includes a discussion of the population and labour market structures, welfare state regime and family policy landscape, developments in work–life reconciliation policies, and, as is the focus of this thesis, parental leave policy and the 2016 reform. The thesis then

continues with three complementary studies providing an examination of first-time fathers' parental leave trajectories in Luxembourg. The three studies build a storyline of first-time fathers' parental leave experiences in three stages: access to leave, the use of leave, and decisions surrounding the timing and duration of leave. Furthermore, this thesis approaches the study of first-time fathers' parental leave take-up from two complementary angles. The first one is the interplay between workplace characteristics and first-time fathers' parental leave take-up behaviours. Concurrently, the role of intra-household factors is widely used in understanding and explaining first-time fathers' parental leave take-up behaviours in the periods preceding and following the 2016 parental leave period. In summary, this thesis provides a thorough analysis of modern first-time fathers' parental leave take-up in contemporary Luxembourg.

This thesis focuses on Luxembourg's 2016 parental leave reform and measures the impact of the changes it has caused. The first study (Chapter 5) concentrates on parental access to leave by analysing the changes in eligibility criteria following the 2016 reform. Using Luxembourg's social security register data, this chapter shows whether those who became eligible for the first time actually started to take parental leave. The second study (Chapter 6) acts as the core of the thesis, as it provides a causal analysis of the impact of the reform on first-time fathers' parental leave take-up. It also shows the varying impacts thereof across workplaces, income groups and households. The final study (Chapter 7) provides an in-depth examination of the interplays among intra-household negotiations, relative resources, and extra-household factors in shaping the timing and duration decisions of fathers' parental leave. This final study covers the pre-reform period. Hence, although not measuring the reform's impact, it provides new evidence concerning the details of parental leave take-up behaviours and readiness. Overall, the three studies examine different stages of the parental leave period, and the findings

establish a basis for future studies that can be conducted once the post-reform period is long enough for the entire leave coverage period to be available for research.

The thesis ends with a conclusion chapter summarising the key messages from previous studies, listing recommendations for policy, and providing new directions for future research.

Chapter 2: Conceptual and Empirical Background

2.1. Introduction

This chapter provides a background for the entire thesis. Because the thesis has a single-country focus, works with the same policy and uses the same data across the three chapters with empirical analyses, there was a risk of repetition across these studies for specific sections. To avoid such repetition, I have designed this chapter to help the reader navigate better and to give a more comprehensive understanding of the content. In addition, this chapter sets out the conceptual framework used across the three studies and the cross-cutting themes that benefited the construction of the thesis.

2.2. Fatherhood in parental leave policies: an overview

This part aims to present the philosophy of parental leave policies and when and how they are developed, with a specific focus on fathers.

Parental leave policies are classified under work-life reconciliation policies, which have long focused on protecting, preserving, and increasing maternal employment (Koslowski, 2021; Koslowski & O'Brien, 2022). However, by design and definition, parental leave policies differ from maternity and paternity leave policies. Maternity and paternity leave policies are designed as health measures aiming to give mothers time to recover following childbirth and for fathers to accompany them (International Network on Leave Policies & Research, 2019). Parental leave policies are designed as care measures. They aim to relieve the tension between care and paid work responsibilities faced during the early years of parenthood or the children's life course. As they come with a job protection component and—although not

always—with compensation, parental leave policies are posited as bridging the transition from working adulthood to working parenthood.

The motivations for developing parental leave policies stem from two essential domains. The first is to achieve gender equality by reducing any penalty from motherhood (Budig & England, 2001) and avoiding an increase in the pay gap between mothers and fathers after childbirth (Killewald, 2012). The second is to ensure that the child is not deprived of parental care.

By recognising fathers' parenting roles, parental leave policies have a strategic importance in increasing men's involvement in providing care for their young children (Brandth & Kvande, 2009a, 2009b; O'Brien & Wall, 2017). This dimension is often instrumentalised by formulating the leave as a non-transferable, father-reserved, well-compensated entitlement (Koslowski & O'Brien, 2022).

Box 1 Historical development of parental leave in the legislative framework

At the international level, the 1919 Maternity Convention released by the ILO is considered the first milestone for the introduction of parenting-related leaves (ILO, 2019; Koslowski & O'Brien, 2022; O'Brien & Uzunalioglu, 2022). In the following century, the conventions at this level and the directives released by different European Union bodies (such as the European Commission or the Council of the European Union) prioritised maternal employment. Their directives elaborated on the specifications of maternity leaves. Fathers' involvement in childcare gained momentum in legislative settings from the mid-1990s onwards (Moss, 2019). The subsequent years, starting with the European Commission's first parental leave directive 96/34/EC in 1996, brought a shift in work-life reconciliation policies at the European level. From the intense focus on mothers to an emphasis on fathers' engagement, parental leave policies became a gender equality tool addressing parents, workplaces, and child well-being. In the following two decades, parental leave measures were updated in the specific work-life reconciliation directives 2010/18/EU (The Council of the European Union, 2010) and 2019/1158 (The European Parliament and The Council of the European Union, 2019).

At the national level, a mention of fathers within a parental leave context first appeared with Sweden's introduction of parental leave in 1974 (Moss & Kamerman, 2009). Later (in 1993), Norway became the first country to introduce father-specific leave days, globally known as the daddy quotas (Brandth & Kvande, 2009b).

Historically, the unequal division of paid and care labour among men and women is also mirrored in parental leave take-up practices at the global level (Koslowski, 2021; Koslowski et al., 2020). Despite the progress in the policies in the macro sphere, gendered attitudes in the domestic sphere remain visible—the pace of progress is slower and taking place more incrementally over decades (Scarborough et al., 2018; Sullivan et al., 2018). Nevertheless, the traditional division of labour is not being reversed entirely. Mothers continue to be the primary users of parental leave, and fathers are still either considered or act as secondary caregivers (Haas et al., 2002; Hobson & Fahlén, 2009; Lammi-Taskula, 2008). Although fathers are now more involved in childcare, their contribution remains marginal compared to mothers (Sullivan, 2016). The reasons behind the obstinate gap between fathers' and mothers' parental leave take-up are a combination of eligibility rules, (lack of) financial resources, and the gendered norms embedded in workplaces and social networks (Barigozzi et al., 2018; Bergqvist & Saxonberg, 2017; Brandth & Kvande, 2018, 2019; Hobson et al., 2006; O'Brien & Wall, 2017).

Parental leave policies fall into a space where the gender equality and improved parental engagement goals of the statutory policy (at the macro level) encounter the expectations, norms, and regulations of workplaces (at the meso-level) and individuals' customs, norms, and beliefs (at the micro-level). Moreover, in most places (predominantly across Europe) where it is available, parental leave is designed as an employment-related benefit. Thus, leave take-up behaviours are difficult to isolate from parents' employment and workplace conditions.

Parental leave is administrated at the workplace, where the statutory right is embodied. This structure places a weight on workplaces as they become determinants of parental leave. Whether the workplaces impede, enable, or promote parental leave defines the policy's success. This also suggests that

having a generous statutory entitlement is insufficient without workplace support. The resulting phenomenon is known as the ‘implementation gap’, in which, despite generous statutory rights, take-up might be low mainly because of inadequate support from workplaces (Haas & Hwang, 2019b; Hobson et al., 2006).

Before moving on to details of the determinants of parental leave at different stages of the decision-making process, it is worth mentioning a design issue with the policy. The contingency on employment comes with a presumption that all relevant parents are traditionally employed, working in companies with permanent or defined contracts and hours (EIGE, 2020; Koslowski & O’Brien, 2022; Malinga & Ratele, 2022). However, non-standard employment, zero-hour contracts, and self-employment are becoming increasingly common. The emphasis on regular employment creates a gap in access and fails to meet all types of parents’ needs, despite aiming otherwise. Such eligibility gaps are more prevalent in countries such as the UK, where self-employment is high, yet the self-employed are not considered eligible for parental leave (EIGE, 2020, 2021).

In short, the evidence converges in what makes parental leave work for fathers: father-reserved days, compensation, and non-transferability. Nevertheless, for these elements to appeal to fathers, there needs to be a more remarkable dedication to a policy that fits the ever-changing forms of employment. Koslowski and O’Brien (2022) suggested that a combination of more inclusive design and supportive workplace culture are vital ingredients to make fathers’ parental leave the new normal.

2.3. Conceptualising access, take-up, and intra-couple negotiations for the timing and duration of parental leave

This section provides a conceptual framework for the three studies in the thesis. The sub-sections follow the same logical progression as the studies. They all start with the theoretical background and then link to the relevant parental leave literature. All the sub-sections conclude with a presentation of how this framework is applied in the respective studies of the thesis. All the studies (Chapter 5-6-7) also have their own separate literature review sections.

2.3.1. Access to parental leave and leave as a capability

The division of care labour when entering the realm of parenthood can be seen as a continuation or a reflection of the division of labour in the pre-parenthood, inside and outside the household. Pre-existing gendered practices, either balanced or disproportioned, are likely to be repeated with the addition of new parenting responsibilities. There is also evidence suggesting that couples incline towards a more traditional gender division when they become parents (Perales et al., 2018). However, this does not mean that parents will always comply with the pre-conceived gendered norms. Contrarily, they may as well resist them and form a new balance. As West and Zimmerman (1987) argue, new parents simply reproduce their own gendered practices rather than abide by what is expected of them (Hobson, 2018).

However, this new formation of the norms or re-distribution of household labour and resources does not exist in isolation. It occurs in plurality through the gender structures embedded in multiple spheres of society and institutions; see, for example, Risman (1998); Risman (2004); Risman and Davis (2013). In other words, new parents' statutory rights and entitlements,

as well as the workplace regulations and culture, are likely to be conclusive elements in reproducing their gendering and parenting practices (Barnard et al., 2001; Lewis & Giullari, 2005; Pfau-Effinger, 2005). What contributes to this dynamic can be clustered around four pillars: eligibility for the entitlement, agency to decide, ownership and practice of the entitlement and an enabling environment. In advanced ecosystems (with stronger gender-equality values), one would expect to observe a fifth pillar: a promoting environment.

Conceptually, the transition from gaining access to a right (in this case, eligibility for parental leave) and exercising it (in other words, parental leave take-up) can be ideally situated in the space of the capabilities approach. The capabilities approach (CA) was initially developed by Amartya Sen in the 1980s and further advanced by Martha Nussbaum. It offers a thought space to assess the gap between individuals' aspirations and their entitlements to be able to meet these goals (Robeyns, 2005; Sen, 1992b) and also acts as a conceptual framework to evaluate policies and measure their impact on people's well-being and capabilities (Lewis & Giullari, 2005; Nussbaum, 2003; Robeyns, 2005; Sen, 1985a). The capabilities approach focuses on the distance between real opportunities that individuals have and who they want to be (Lewis & Giullari, 2005; Nussbaum, 2003; Sen, 1985a). The capabilities approach is interested in individuals' choices, given their set of capabilities, or what they would have done or become if they had the capabilities (Hobson, 2011, 2018). This also includes how the parents value care, how they share the care and who does what (Hobson, 2013).

Within the scope of this thesis, the capabilities approach helps understand whether being eligible for parental leave is a sufficient condition for actually taking it. The capabilities approach explores the distance between the conversion from 'owning' the leave (having access to it) to becoming practitioners of it (beneficiaries or users). Along these lines of thinking,

eligibility for parental leave corresponds to a conversion factor. In contrast, the workplace culture, norms, and environment, together with the social norms, coincide with the conversion processes. Parental leave can be interpreted as a freedom that eligible parents have to achieve a work-life balance, which the capabilities approach terms as valued functioning. Thus, the take-up of leave represents the exercise of an owned freedom.

A crucial point in the study of parental leave take-up lies in understanding access to it. Unless universally provided, an analysis of the take-up of any given benefit concerns people who meet the eligibility criteria. In policies where such rules are in place, depending on the degree of restrictions, the take-up of the benefit could be seen as a privilege: a property for a small proportion of society with the qualities and means to afford to be a beneficiary of the right. For parental leave, this starts at the statutory level, where the eligibility rules might be bound by employment history, social security contribution records, contract type, citizenship, or residency in the country (Dobrotić & Blum, 2020; EIGE, 2020; Koslowski et al., 2020). Once this initial barrier is passed, the workplace regulations follow; the norms, culture, and collegial and managerial attitudes to promote or withhold actual parental leave use.

The first study in this thesis focuses on the eligibility phenomenon and aims to document whether eligibility translates into take-up. The 2016 parental leave reform in Luxembourg relaxed the eligibility criteria. The changes to the rules increased the potential beneficiary pool for parental leave. Parents who work between 10 and 20 hours per week, known as marginal part-time workers, gained access to parental leave for the first time. This change offers an opportunity to empirically test the extent to which the access to an entitlement (in this case, parental leave) develops as a sense of ownership of that entitlement that translates into its exercise (in this case, the take-up of leave). The findings of this study showed that marginal part-time working

mothers started taking leave, and by 2018, the reform's outreach to marginal part-time working fathers remained limited. However, marginal part-time working mothers' positive response to the reform could be interpreted as progress towards strengthening women's labour market attachment in Luxembourg by securing their jobs while granting them time off for care during the early phases of parenthood.

2.3.2. Take-up of parental leave: the role of workplaces

The actual take-up of parental leave is both a public and private family concern (Koslowski & O'Brien, 2022). The decision and its practice exceed the family household's limits and spill into the workplace. Since parental leave is administrated at the workplace, leave take-up decisions cannot be discussed in isolation without accounting for the specific characteristics of the workplace.

In almost all cases, there is a time window between the intention to take parental leave and the actual start of the leave. Working parents are obliged to inform the authorities at their workplaces about their leave take-up intentions a few months (usually about four to five months) in advance (Koslowski et al., 2020). This means that the administration of parental leave starts before the actual leave is taken. It also suggests several layers of interaction and potential negotiations between different parties. Once an employee communicates their intention to take parental leave, organisational and managerial responsibility emerges with regard to replacing their labour during the absence. The re-organisation of the absent employees' tasks is a direct concern for their co-workers or team members. However, this scenario assumes that the working parent has already requested to take parental leave. Such a situation implies no conflicts appearing due to absences related to parental leave.

The actual complexity occurs before this intention surfaces. The critical issue and interest of the research then become understanding the enabling, promoting, and hindering factors in the making of parental leave intentions. Understanding these interaction mechanisms becomes even more significant when exploring fathers' parental leave take-up behaviours.

Due to the traditionally gendered division of labour, men's historically more significant involvement in paid work and the long-praised ideal worker norms, fathers' parental leave take-up does not appear as normal as it is for mothers. Take the case of Japan, where parental leave policies are generous, but the male breadwinner culture at work is so prominent that the policy fails to transform behaviours (Goldstein-Gidoni, 2020; Kimoto, 1997). To what extent and under what circumstances workplaces accommodate parent employees' leave take-up demands has long motivated the development of scholarly work in work-life reconciliation and parental leave policies.

Workplaces are active ecosystems. Like individuals and households, workplaces also evolve, develop and reproduce norms along with changing social policies and societies. They reflect, revive and re-frame the social architecture that they are in; hence, they are seldom ever gender-neutral (Acker, 1990). On the contrary, the gender-neutral framing of relevant policies has been interpreted as a camouflage to conceal existing power relationships between men and women as opposed to contributing to the construction of more involved fatherhood or a stronger acknowledgement of male workers' fatherhood identities (Hojgaard, 1997).

The assumption of gender neutrality has also been considered a mechanism magnifying male privilege (Connell, 1987; Galea & Chappell, 2021). Gender neutrality assumes that all parties already have the same entitlements and opportunities. This assumption (perhaps also the inclination towards neutrality) fails to bring more equality in the gendered nature of workplaces as the historical evolution of the labour force is strongly gendered, and

gender-based disadvantages persist, especially in male-dominated industries where female presence is low (Galea & Chappell, 2021). In other words, a gender-neutral approach in already gendered organisations (to the detriment of women) will not be able to avoid reproducing existing gender inequalities. This reflective nature also resonates with Giddens's duality of structures theory; organisations are not only the mediums through which individuals' practices take place but also an outcome of their preferences (Giddens, 1976; Swell, 1992). This duality suggests a fluidity of the culture and practices, as everything is prone to change and may evolve over time and as people's preferences change. This can also be interpreted as gendered organisations and individuals' gender ideologies are closely linked to one another, see, for example, Davis and Greenstein (2009); Fuwa (2004). Because gender ideologies reflect individuals' level of support in the division of labour between paid work and family responsibilities, they also contribute to the organisations' gender practices.

The intertwined relationship between organisations' gendered culture (which may be egalitarian or not) and individuals' gender ideologies (again, either supportive of equality or the opposite) opens a new layer of interaction and room for exploration in understanding the mechanisms behind fathers' leave take-up. In Risman's (1998; 2004) terms, *gender structure* interlinks these mechanisms, reshapes and sometimes reproduces them [emphasis added].

Gender is constantly being invented and reshaped through individual and institutional interactions. Some studies argue that gender ideologies are exposure-based, and the nature of the exposure shapes gender ideology. For example, exposure to gender egalitarian interactions will lead to stronger gender egalitarian beliefs, whereas a gender-unequal environment will foster inequalities (Bolzendahl & Myers, 2004; Davis & Greenstein, 2009; Fuwa, 2004). Similarly, parental leave policies could be taken as conveyers of gender egalitarian beliefs and attitudes, especially with the growing emphasis

since the 1990s on fathers' engagement, see for example, Brandth and Kvande (2018); Koslowski et al. (2020); Koslowski and O'Brien (2022); O'Brien et al. (2007a), as well as the most recent work-life reconciliation directive numbered 2019/1158 of the European Council (The European Parliament and The Council of the European Union, 2019). Expanding father-reserved leave periods also means an enriched capability set for fathers. This can be interpreted as offering the potential to shift the existing discourse and generate a new narrative (Giddens, 1981; Swell, 1992).

Although traditional fathering practices are challenged by contemporary parental leave policies in which their caregiving duties are explicitly addressed, the ideal worker norms are still extant in the division of care labour and parental leave take-up. Garey (1999) and Ranson (2012) argue that a working father and a working mother are not equivalent to each other despite living in the same household with the same family responsibilities. Indeed, parental leave policies were initially framed as gender-neutral (Hobson et al., 2006). The underlying motivation behind the gender-neutral approach of parental leave policies was to distribute childcare responsibility and undo the dominant assumption of mothers being the primary caregivers and the sole users of leave. The gender-neutral approach suggests itself as an explicit call to fathers' fathering responsibilities, and this approach has led to a growth in paternal engagement in parental leave. However, scholarship dealing with parental leave agrees on the importance of father-reserved leave in increasing fathers' parental leave take-up (O'Brien, 2009). This suggests the necessity to re-think the gender-neutral design of parental leave policies.

An example of gender neutrality supporting male privilege or feeding gendered practices is the expectation of a pregnant worker's post-birth absence from work due to labour, consecutive maternity leave, and parental leaves. By contrast, a working man's transition to fatherhood does not necessarily trigger a similar expectation. The attitudes towards new parents

vary conceptually: while a female worker's transition to motherhood comes with the question of the duration of her leave, for fathers, the question becomes whether they will take the leave or not (Bygren & Duvander, 2006). The positioning of working parents is not identical at the starting point. The gendered distribution of parental leave among mothers and fathers reflects the gendered nature of paid work and its embodiment of masculinities.

In short, gender normative expectations are likely to be mirrored in workplaces, shaping final decisions and successive behaviours. Thus, challenging the gender normative expectations in the workplace can be interpreted as challenging the social norms. In other words, debunking masculine ideals goes through the workplace filter (Haas & Hwang, 2019a). Both as a part of this active ecosystem (for example, as an employer, worker, manager, or employee) and as the target and subject of the policy (as the father of a young child), working fathers could find themselves either supported or frustrated by their workplace in considering, attempting, and exercising their entitlements.

This multi-dimensional nature of the emergence of working fatherhood and parental leave practices is also associated with the conceptual model proposed by Hojgaard (1997), in which fatherhood, work and gender equality are linked (Haas & Hwang, 2019a). The reflexive nature of fatherhood, as proposed by Brandth and Kvande (2002), further suggests fathering as a skill that can be learned, exercised and excelled at. From this viewpoint, parental leave policies could be taken as the means or intermediaries in attaining engaged fatherhood.

Similarly, across different countries—and therefore different parental leave regimes, workplaces, and employment sectors—it has been consistently shown that in workplaces where masculine traits are embraced and ideal worker identities are cherished, men's parental leave take-up is either at a low rate or not expected. How workplaces address their employees' parenting

responsibilities and whether they embed a gender-egalitarian attitude and family-friendly approach shapes fathers' parental leave take-up decisions (Duvander & Johansson, 2012; Haas & Hwang, 2007; Lewis & Haas, 2005; Mun & Jung, 2018; Tanquerel & Grau-Grau, 2020; Twamley & Schober, 2019).

A male-dominated work environment is likely to value stereotypical masculine qualities and suppress feminine-associated norms and needs. In other words, social gender is likely to be reproduced in a male-dominated work environment (Bjarnegård & Kenny, 2016; Blumberg & Coleman, 1989; Galea & Chappell, 2021). At a larger scale, as an example, a similar behavioural pattern was noted in Sweden. There, despite being well-integrated into the political male norms dominate the policies, and women's power has *'been ghettoised into female sectors of policymaking'* (Hobson & Lindholm, 1997, p. 478) [emphasis added].

Nevertheless, as Beckwith (2005) suggests in the context of political institutions, talking about an organisation being gendered also reveals the possibility of the organisation being re-gendered (Kenny, 2014). Such a process possibly has a link to visibility and representation in organisations. If the general assumption is inclined towards female employees' parental leave take-up, having a feminised labour force could promise a new normal in support of parental leave take-up. Evidence shows an association between the gender composition of the workplace and fathers' likelihood of parental leave take-up. Notably, when working in a largely feminised workplace, fathers' parental leave take-up is likely to be higher (Bygren & Duvander, 2006; Duvander & Johansson, 2012; Kaufman & Almqvist, 2017).

It could also be assumed that high-level female managers could be proponents of parental leave take-up, sometimes to the even greater advantage of fathers. A study from Japan shows that female managers act as change agents and are more supportive of their male subordinates' parental leave take-up (Fuwa,

2021). However, there are counter-arguments in the literature indicating this assumption may not always hold because having female managers does not guarantee that the workplace, as an organisation, will be more family-friendly and supportive of parental leave-related absences (Acker, 1990; Bates, 2021). Female managers may imitate the existing masculine tradition despite having secured a senior position. Actual behaviours are shaped by the extent to which an organisation reproduces or disavows ‘hegemonic masculinity’ (Connell, 1982; Kessler et al., 1982). In other words, the differences originate from the extent to which the male traits and masculine ideals are praised or denounced (Connell & Messerschmidt, 2005).

Given the importance of the workplace for parental leave, in the second study of this thesis, I provide a heterogeneity analysis with workplace characteristics, in addition to measuring the overall impact of the 2016 reform. I measure the magnitude of the change in first-time fathers’ parental leave take-up depending on workplaces. The dataset, explained in detail in the further sections, contains a large set of variables enabling testing of the interplay between workplaces and fathers’ parental leave take-up. A striking finding, not only for the second study but for the entirety of the thesis, is the significance of mothers’ workplace characteristics in shaping fathers’ parental leave take-up behaviours. This reaffirms the complex nature of the leave take-up, despite being classified as a capability set. This complexity and previously covered links between gendered organisations and individuals’ gender ideologies led me to the third study of this thesis, where I scrutinise the role of partners.

2.3.3. Take-up of parental leave: resource allocation and negotiations - the role of partners and household characteristics

In two-parent households, the decisions around the division of labour come to the surface as a blend of two key factors. The first is where the partners

come from, as in what devises their gender ideologies, beliefs, and attitudes. The second factor is what they have, regarding what they have as resources, including their rights and entitlements, economic power, time availability and skills. Since households are complex units, both as economic and social actors, the norms, culture, and values are impossible to ignore in understanding final decisions and negotiations among co-parents (Wallace, 2002).

As discussed earlier, parental leave take-up is not a simple, singular decision but a process (**Figure 1**). The decision is not only about whether to take the leave but also when and how long to be on leave. Dissecting the parental leave take-up decision into its components invites a closer examination to offer a better comprehension of the outcomes.

There is a power struggle behind the decision-making in the household. Indeed, families may carry traditional values and follow the historically conservative path in which mothers are caretakers and fathers are breadwinners. However, in the second decade of the twenty-first century, maternal employment became a well-established state, and a range of policies to support work-life reconciliation was developed (Lewis et al., 2008; Wallace, 2002). Thus, intra-couple negotiations become more necessary than ever, and power dynamics appear to be an area worth dwelling on further.

The study of this power struggle was launched by the leading work of Blood and Wolfe (1960) and then supported and developed by empirical evidence over the half-century following their research. Co-parents' bargaining power in deciding who does what and when is strongly related to their set of resources (Becker, 1981; Bianchi et al., 2012; Brines, 1993, 1994; Nitsche & Grunow, 2018). This is particularly visible and significantly related to parents' economic opportunities, as research suggests the partner with greater economic resources holds the greater power in the decision-making (Becker, 1965; Sullivan, 2013; Sullivan & Gershuny, 2016). Over recent decades, a

large body of evidence shows a persistent gender pay gap, resulting in an unequal division of labour in the household (Agarwal, 1997; Antman, 2014; Browning et al., 1994). This has also been theorised by Becker (1991) as gendered task specialisation. Although the gendered task specialisation in a household is not explained by biological differences, as Becker suggested, the concept of within-household task specialisation persists and has been examined from different perspectives, such as norms, see for example, Baker and Jacobsen (2007); Bertrand et al. (2015); Siminski and Yetsenga (2020). Co-parents' parental leave take-up decisions and behaviours fall into this area where an imbalance persists despite parents having the same entitlements.

The development of gendered (or non-gendered) behaviours within the household is closely associated with the social environment that the co-parents are exposed to, separately and together. As they are a social and economic unit, as Wallace (2002) mentions, this creates a bidirectional relationship between parents, who themselves are the product of the social environment and contributors to this social structure (Risman & Davis, 2013).

Situating gender as a social structure, as Risman posited (1998; 2004), and reading parental leave behaviours through this lens helps understand the embedded relationships in making parental leave take-up decisions. The inseparable interactions across macro, meso, and micro level actors (corresponding to the policy, workplace, households, and individuals) are interlaced through gender (Sullivan, 2006). Consequently, the haves and have-nots of the individuals also appear as a product of the gender structure within their social contexts. The distinctions occur in the choices, despite having been given similar opportunities. The preferences (where the deviance lies) then become a product of social structure, whether allowing the individuals to create their own paths or fit them into what is already patterned (Risman, 2004).

As time has changed and gender egalitarianism became increasingly popular, which sets a new norm, there appears to be a distinction between the private family space and the cultural expectations (Pepin & Cotter, 2018; Scarborough et al., 2018). From the aspect of parental leave policy, in a way, the gender-neutral design challenges the existing gender structures with a transformation from the gendered division of labour to a more egalitarian distribution of care work. By treating fathers and mothers equally, offering them the same opportunities and expecting them to meet the same criteria, parental leave policies can even be interpreted as an instrument to undo gender in the workplace and in the household. However (as discussed earlier), because the existing social environment is severely gendered, the parental leave take-up behaviours are overshadowed by gender structures. This becomes more apparent in co-parents' individual resources and how they are allocated in the household.

The parents' relative resources are formed by their financial capacity, level of education and available time. Additionally, social norms and cultural expectations also contribute to these resources. This could be in the form of expectations and trying to fit into the image of what is considered normal in their local communities. It can also be through the statutory rights and benefits they have access to through policies or workplaces. For example, if each parent has individual entitlements or one's access to a right is only through the other's entitlement is likely to be definitive of resource sets.

The gender structure and gender norms in a society are likely to be mirrored in within-household resource capacity and allocation. Living in a society where gender-equal values are mainstream, and a wide range of work-life reconciliation policies exists could foster more equal division of labour in the household. However, living in a society with more traditionally gendered values could result in the gendered division of labour to the disadvantage of women, giving them weaker bargaining power (Fuwa, 2004). By the same

token, in addition to gender-equal attitudes, several research studies document that in countries where the education and full-time employment levels of women are high, publicly subsidised childcare is available, and paid leave periods are relatively short, women's and men's housework converge to each other (Fuwa & Cohen, 2007; Sayer & Gornick, 2012; Sullivan et al., 2018). For parental leave policies in particular, workplace norms and culture could nevertheless override gender-equal intentions, as a recent qualitative study from Norway suggests (Halrynjo & Mangset, 2022b). Their study exemplifies that competitive market structure overrides employers' goodwill and reproduces traditional gendered use of parental leave. In short, co-parents' resources and bargaining power may not necessarily be interchangeable or correspond to each other in perfect harmony, as their negotiations will be affected by the nature of this multi-actor environment (Blumberg, 1984; Blumberg & Coleman, 1989; Fuwa, 2004).

This theoretical basis indicates an intertwined relationship between parents' gender ideologies and their relative resources. The direction of any causal relationship between the development of their gender ideologies and resources—hence their bargaining power—is blurry. Nevertheless, one can assume that their labour market preferences will be a reflection of their gender ideologies (McMunn et al., 2019). An individual's economic power, skill set, and time availability cannot be separated from who they are as individuals and their employment situation in the labour market. This would suggest that couples with more gender-equal ideals are more likely to be dual-earner households.

Consequently, their relative resources and corresponding bargaining power will tend to be more balanced compared with couples that do not have an egalitarian ideology. Similarly, parents' leave take-up decisions are formed under circumstances where their gender ideologies and relative resources converge. In support of these theoretical arguments, research suggests that

men are more likely to take parental leave in households where gender-egalitarian attitudes are embraced (Almqvist & Dahlgren, 2013; Kaufman & Bernhardt, 2015).

The evidence repeatedly shows that one of the most significant determinants of parental leave take-up is the financial constraints (Han et al., 2009; Margolis et al., 2019; O'Brien et al., 2007b; Reich, 2011). Whether the leave is sufficiently compensated and whether parents can thus afford to take it to establish the basis for decisions about taking leave. This is particularly decisive for fathers' parental leave take-up, as the literature documents that fathers' leave take-up is lowest when the leave is poorly or not at all compensated (Bedard & Rossin-Slater, 2016; Moss & O'Brien, 2006; Patnaik, 2019; Zhelyazkova, 2013).

The relationship between parents' economic capabilities and leave compensation is also convoluted. For example, living in a high-income household could suggest power in the capability to afford to be on leave. However, this would also indicate that the earnings loss will be more significant, due to the gap between the leave compensation and the parent's actual income. In other words, the leave take-up of higher-earning parents is likely to be associated with a greater financial loss for the entire household compared to lower-earning parents taking leave due to their economic resources and subsequent bargaining power. However, higher-income households are also more likely to have reserves to sustain living standards despite the greater financial loss than lower-income households. Hence, the income loss comparison between different income-level households should respect the relativity of the loss and total household income.

As in any other matter, the partner with a more significant set of resources has a greater say in the decision-making concerning parental leave take-up. At this point, the extent to which the labour is gendered in the household and the existing pay gap between parents comes to the surface (Thébaud, 2010).

Consequently, empirical evidence shows higher parental leave take-up among fathers when their partner has greater negotiation power (Kaufman & Almqvist, 2017; Ma et al., 2019; Margolis et al., 2019; Sundström & Duvander, 2002). When mothers' contribution to the household income is small—or in other words, when the mother earns less than her partner—the likelihood of fathers' parental leave take-up diminishes (Ma et al., 2019). The opposite also holds. Fathers are more likely to take parental leave when their partner has greater negotiation power within the household (Kaufman & Almqvist, 2017). When the co-parents' incomes are balanced, or if the mother earns more than the father, fathers tend to be more likely to take parental leave (Lappegård, 2008; T. Lappegård, 2012).

This does not mean, however, that every man whose partner has higher earnings will always take parental leave. As discussed previously, fathers' involvement in care labour does not grow linearly. In other words, even though greater economic resources enable women to have greater bargaining power and encourage fathers' deeper engagement in parental leave, this does not guarantee that it works as such in each household where women have greater economic power. Despite long years in the paid labour market, women's earnings may still be considered a supplementary or secondary (Moen & Sweet, 2003; Raley et al., 2006; Thébaud, 2010). This approach challenges the power of relative resources and signals the importance of absolute earnings. That would mean that it is not the partners' income compared with each other that matters more, but the total amount of wages, for example, see Sullivan and Gershuny (2016).

Similarly, Gupta (2007) was the first to empirically show the importance of women's economic autonomy and absolute earnings for the division of labour in the household. Additional evidence also indicates that women tend to have higher relative wages in lower-earning households, whereas in high-income households, absolute earnings proved to be more important (Winslow-Bowe,

2006). This also links back to parents' behaviours and decisions in the face of potentially low compensation for parental leave, affordability of the leave and the definitive role of lost income (Blum et al., 2017). In short, explaining co-parents' division of labour in the household—in this case for parental leave use—only based on relative economic power would provide an incomplete picture. Consequently, this has been considered in the thesis; thus, co-parents' absolute earnings are also included in the analyses.

Although not included here due to data limitations, parents' education levels are among the most prominent determinants of their bargaining power, gender ideologies, and, consequently, their parental leave take-up behaviours. Evidence suggests a positive correlation between acquiring higher education and displaying gender-egalitarian behaviours. In the analyses, income quintiles are used to capture the educational background. Higher-educated fathers are more likely to exhibit engaged parenthood behaviours and are more involved in parental leave take-up than lower-educated fathers (Boll et al., 2014; Han et al., 2009; Naz, 2010). In association with bargaining power arguments, there is evidence documenting fathers increased parental leave take-up in households where women have higher education (Bygren & Duvander, 2006; Geisler & Kreyenfeld, 2011; Twamley & Schober, 2019).

Consequently, in the third study of this thesis, I scrutinise intra-household negotiations in light of gender ideology and relative resources-bargaining power theories. I analyse the interplay between intra-couple negotiations and first-time fathers' parental leave take-up decisions. I take co-parents' relative (and absolute) resources as a product of the gender structure embedded in their everyday lives. First, I analyse the determinants of the timing of their parental leave, and I then look at its duration. Finally, I provide new evidence showing the complicated nature of parental leave take-up decisions. The findings indicate that parents' resources are in competition, and the parent holding greater resources—mainly financial—has more power in the

decision-making. It also appears that decisions are not only made at the household level: extra-household factors, especially mothers' workplaces, influence fathers' parental leave timing and duration.

Chapter 3: Literature review

3.1. At the macro level: parental leave across the globe, variations in design, gender discrepancies, and fathers' use of leave

3.1.1. Definitions of parental leave across the globe

Parental leave policies are classified as work-life reconciliation policies, which have long focused on protecting, preserving, and increasing maternal employment (Koslowski, 2021; Koslowski & O'Brien, 2022). Although they are clustered in the same policy constellation as maternity and paternity leave policies, parental leave policies are designed and defined differently. Maternity and paternity leave policies are designed as health measures that give the mother time to recover following childbirth, and the father time to support the mother during this period (International Network on Leave Policies & Research, 2019). Parental leave policies are designed as care measures that aim to reduce the tension parents face in balancing their care and their paid work responsibilities during the early years of parenthood or the child's life course. These policies typically come with a job protection component and provide – although not always – compensation. Thus, parental leave policies are designed to serve as a bridging instrument that facilitates the transition from working adulthood to working parenthood.

Parental leave policies are defined very differently across countries. In some countries, like in France and Luxembourg, maternity, paternity, and parental leave entitlements are separated. By contrast, in some other countries, such as in Iceland, Germany, Sweden, and Norway, the boundaries are blurred with, no apparent distinction being made between different forms of post-natal leave (Koslowski et al., 2022). Moreover, in some countries, such as in Australia, Belgium, Bulgaria, Croatia, the Czech Republic, Denmark, France, Germany, Greece, Ireland, Israel, Italy, Latvia, Japan, Korea, Luxembourg,

the Netherlands, Slovenia, Spain, and the United Kingdom, parental leave is an individual entitlement. This means each parent's eligibility is assessed individually, and the eligibility status of one parent does not affect that of the other.

Moreover, in this latter group of countries, one parent cannot transfer her or his leave entitlement to the other parent. The individual entitlement approach acknowledges that both parents have parenting responsibilities. The individualisation of parental leave entitlement is crucial, because when parental leave is designed as an individual entitlement, it opens a space in which both parents' parental duties are explicitly acknowledged. In other words, defining parental leave as an individual entitlement creates a formal environment in which fathers' parenting duties are normalised. Evidence from many studies has confirmed the strategic importance of parental leave policies in increasing men's involvement in providing care for their young children (Brandth & Kvande, 2009a, 2009b; O'Brien & Wall, 2017). This dimension is often instrumentalised by formulating the leave as a non-transferable, father-reserved, well-compensated entitlement (Karu & Tremblay, 2018; Koslowski & O'Brien, 2022).

In contrast, some countries, such as Austria, Canada (Québec), Estonia, Hungary, Lithuania, Poland, Russia, and Slovakia, define parental leave as a family entitlement (Koslowski et al., 2022). This means the co-parents are entitled to the leave as a single entity, and they are free to divide the leave between them, which may result in only one of the parents (usually the mother) using the leave.

The eligibility rules for parental leave also vary across countries. The eligibility typologies can be grouped into three categories: employment-related eligibility, family/household composition-related eligibility, and citizenship status-related eligibility (EIGE, 2020). In some countries, such as in Belgium, Bulgaria, Denmark, France, Latvia, Lithuania, Luxembourg,

Hungary, Portugal, and Slovakia, parental leave is defined as an employee entitlement requiring prior social security contributions or employment with the same employer for a designated period. In some countries, such as in Finland, it is a residency-based entitlement. A number of countries, such as Bulgaria, do not recognise same-sex parents as legal unions; while other countries, such as Greece, recognise these same-sex unions, but do not grant them eligibility for parental leave. In some countries, such as in Belgium or Italy, private and public sector employees' eligibility for parental leave differs.

Scrutinising the variations in eligibility criteria across countries, Dobrotić and Blum (2020) identified four clusters of parental leave provisions: the universal parenthood model, the selective parenthood model, the adult-worker model, and the selective adult-worker model. In this clustering approach, Luxembourg, as the country of interest in this thesis, fits well into the selective adult-worker model. Given the nature of the parental policies in Luxembourg, when assessing their effectiveness, it is important to focus on workplaces, as they are where the employment-related entitlements are operationalised. Thus, the interplay between workplace characteristics and fathers' parental leave take-up is the core focus of this thesis.

3.1.2. Fathers' parental leave take-up in the policymaking context

The motivations for developing parental leave policies correspond to two essential domains of social life. The first is to achieve gender equality by reducing any employment penalties associated with motherhood (Budig & England, 2001) and preventing a widening of the pay gap between mothers and fathers after childbirth (Killewald, 2012). The second is to ensure that the child is not deprived of parental care. However, in practice, the effects of parental leave policies may not meet these goals, and “involved fatherhood and gender egalitarianism may emerge as different dimensions” (O'Brien & Wall, 2017, p. 3). Indeed, although parental leave policies give mothers and

fathers the same rights, parental leave take-up is not equally distributed between them (Karu & Tremblay, 2018). In other words, even if parental policies are designed to be gender-neutral, the take-up is still gendered.

Historically, the first policies that addressed working parents' parenting responsibilities and their right to return to work after having a baby date to 1919. The 1919 Maternity Convention released by the ILO is considered the first milestone in the introduction of parenting-related leave at an international level (ILO, 2019; Koslowski & O'Brien, 2022; O'Brien & Uzunalioglu, 2022). In the following century, the conventions at this level and the directives released by different European Union bodies (such as the European Commission or the Council of the European Union) prioritised maternal employment. Their directives elaborated on the specifications for maternity leave. Legislation aimed at promoting the involvement of fathers in childcare gained momentum from the mid-1990s onwards (Moss, 2019). Starting with the European Commission's first parental leave directive 96/34/EC in 1996, there was a shift in work-life reconciliation policies at the European level. As the previous focus on mothers in parental leave policies changed to an emphasis on fathers' engagement, these policies became a gender equality tool addressing parents, workplaces, and child well-being. In the following two decades, parental leave measures were updated in the specific work-life reconciliation directives 2010/18/EU (The Council of the European Union, 2010) and 2019/1158 (The European Parliament and The Council of the European Union, 2019).

At the national level, the first mention of fathers within a parental leave policymaking context was in Sweden's introduction of parental leave in 1974 (Moss & Kamerman, 2009). Later (in 1993), Norway became the first country to introduce father-specific leave days, globally known as the daddy quotas (Brandth & Kvande, 2009b). Following the European Commission's work-

life reconciliation directives, fathers increasingly became a policy target in the parental leave domain. Consequently, fathers' parenting-related leave entitlements were enhanced across Europe (O'Brien & Wall, 2017). The International Network on Leave Policies and Research, established by Prof Peter Moss and Prof Fred Deven in the early 2000s, has conducted annual seminars since 2004. The Network provides independent scholarly monitoring of leave and associated policies at an international level. In early 2022, the 18th annual review of leave policies was published. The scope of the review extends beyond the borders of the European Union and the European continent.

The variations in the leave policy design and eligibility conditions translate into variations in leave take-up behaviours, especially for fathers. There are gender disparities in parental leave take-up, even in the trailblazer countries with a longer and more established history of supporting father-designated leave and gender-equal ideals. For example, in 2019 in Iceland, 87 per cent of fathers took an average of 91 days of leave, while mothers took an average of 180 days of leave (Arnalds et al., 2022). Similarly, in Sweden, mothers continue to take more parental leave than fathers do (Duvander & Lofgren, 2022). In 2021, the average number of days of parental leave taken by eligible parents was 79.5 days for mothers compared to 39 days for fathers. Thus, in 2021 in Sweden, only 30 per cent of parental leave was used by fathers (Duvander & Lofgren, 2022). In Spain, where some progressive policy developments have occurred in recent years, 11 per cent of the parents who took leave in 2021 were fathers (Meil et al., 2022). Since 2018, Spain has made several changes in the leave policy domain. Specifically, i) the leave was redefined as an individual and non-transferable entitlement; ii) the terms maternity/paternity were eliminated and were replaced with the terms birth/adoption/foster care; iii) and the leave for fathers was extended to 12 weeks (from eight weeks) by April 2020 (Meil et al., 2020). The overall trend

in parental leave take-up in Spain showed a decline of 8.8 per cent in 2020. However, the country has made significant progress, given that just 1.7 per cent of the parents of the children born in Spain in 1995 took parental leave (Meil et al., 2022). In Germany, the average parental leave duration as of 2021 was 14.6 months for mothers and 3.7 months for fathers (Blum et al., 2022). There are also gender disparities in the types of leave taken. While mothers tend to take full-time leave, part-time leave use is more common among fathers in countries where this option is available, such as in Belgium, France, and Luxembourg (Koslowski et al., 2022). The most recent official statistics provided by the Ministry of Family and Integration show that the number of fathers (6,186) who took parental leave in 2021 exceeded the number of mothers (5,450) who took parental leave in that year (Berger & Valentova, 2022).

3.2. At the meso level: the interplay between workplace characteristics and fathers' parental leave take-up

Parental leave policies combine elements of care policies and work-life reconciliation policies. They are multi-layered, and directly affect macro-, meso-, and micro-level actors. As these policies are designed as statutory entitlements, particularly in the case of Luxembourg – the country of interest in this thesis – they are a product of the country's macro-level policies and welfare regime agenda. Because they are designed as an employee entitlement and administrated at workplaces, the characteristics of meso-level actors are crucial for the implementation of parental leave policies. Finally, even though leave entitlements are assigned to individuals, because co-parents typically discuss, negotiate, and decide together which parent takes leave, parental leave policies are a household concern, and thus have micro-level elements. Throughout this thesis, in the analyses of the parental leave trajectories of first-time fathers in Luxembourg after and immediately before the 2016 parental leave reform was implemented, the primary focus is on the

role of workplaces. Throughout the analyses of the parental leave reform and intra-couple bargaining of parental leave take-up behaviours, an underlying theme is the interplay between workplace characteristics and parental leave take-up among first-time fathers. Hence, this literature review section focuses on the intersection of workplaces and parental leave.

Especially since the European Commission issued work-life reconciliation directives encouraging the Member States to develop parental leave policies with an emphasis on fathers' parenting responsibilities, the pace of the cultural shift towards engaged fatherhood has increased. In traditionally gendered environments, engaged fatherhood challenges the myths of masculinity and reconstructs working father norms (Liebig & Oechsle, 2017). This macro-level policy-induced shift can influence fathers' behaviours and intra-household dynamics at the micro level, while also affecting workplaces at the meso level. The direction of this latter influence is two-sided, making workplaces "an exciting context for studying change in fatherhood practices" (Kvande & Brandth, 2019, p. 44). On the one hand, making parental leave a statutory entitlement suggests that workplaces will abide by the rules and accommodate parental leave take-up among their employees.

On the other hand, just because workplaces allow their employees to take parental leave does not necessarily mean that they will promote its use, or that they will create an environment that encourages more employees, and especially fathers, to take parental leave. Studies have shown that even at workplaces that use family-friendliness to attract talented employees, the take-up of parental leave often remains low as taking leave does not fit the ambitious goals of the workplace (Kodz et al., 2002; von Alemann et al., 2017). In the space between a generous statutory entitlement and strong workplace values based on ideal worker norms, fatherhood is reinvented along with gender and intra-couple negotiations. As the research suggests that the issue of fatherhood in organisations through the lens of parental leave

remains understudied (Kvande & Brandth, 2019; Liebig & Oechsle, 2017; Mun & Jung, 2018), this thesis represents an important contribution to the literature. Moreover, the single country focus of this thesis – in this case, the focus on Luxembourg – satisfies the argument made by Lewis and Stumbitz (2017) and Kvande and Brandth (2019) that contextual awareness is essential when investigating this topic. By focusing on one country and a single welfare regime, this thesis is able to thoroughly scrutinise the parental leave/workplace/fathers' nexus. Another key reason why single-country studies are valuable is that the statistics and the shared datasets that would be needed to account for all of the country-specific parental leave policy differences are currently lacking. As Karu and Tremblay (2018) pointed out, only some of the available parental leave policy data are consistent across countries. For example, some countries publish statistics on fathers' leave take-up as a proportion of the men of that age group, whereas others report these statistics as a proportion of all fathers in the same age group. Knowing how eligibility is defined and how the take-up is calculated is essential for effective country comparisons. Since such comparisons are often made while failing to take into account some country-specific characteristics, single-country studies remain the best sources of information for understanding parental leave take-up behaviour.

The interplay between workplaces and parental leave take-up derives from two key workplace components. The first component consists of the concrete characteristics of the workplace as an organisation: i.e., the sector and the size of the company and the composition of the workforce, including the share of female employees, the share of white/blue collar employees, and the share of young/old employees. The other component is the workplace's soft characteristics, or the organisational culture. In addition to a workplace's capacity to accommodate employee absences in terms of the cost and re-distribution of the tasks, the attitudes of colleagues and managers are among

the vital determinants of whether the workplace's family-friendliness promises are fulfilled (Den Dulk & De Ruijter, 2008; Haas & Hwang, 1995; Kvande, 2009; von Alemann et al., 2017). The extent to which a workplace stigmatises parenting-leave-related absences, especially for male employees, and the extent to which a workplace idealises traditional work-focused culture, can be measured by the number of fathers who requested and took parental leave. Despite the existence of generous statutory parental leave policies and of family-friendly workplace policies, fathers' take-up of parental leave remains at low levels, which contradicts the family-friendliness claims of workplaces. For example, Kaufman (2017) argued that in Britain, one of the critical barriers to fathers' parental leave take-up was perceived workplace resistance. A US study found that fathers who requested parental leave were stigmatised as "poor workers" and "feminine", as they were perceived as not having an ideal worker profile and of lacking masculine traits (Rudman & Mescher, 2013). Studies from Finland and Norway also pointed out that male employees are expected to propose solutions for being absent due to parental leave (Brandth & Kvande, 2019; Närvi & Salmi, 2019). The pressure on working fathers forces them to invent strategies or to request leave at a time when the workload would not be affected by their absence (Amjahad et al., 2022; Halrynjo & Mangset, 2022a). Other studies have suggested that the level of support male employees receive in the workplace is likely to shape their parental leave take-up behaviour, as they may be concerned that taking leave will put their career progression at risk (Bygren & Duvander, 2006).

Similarly, a study found that fathers with high levels of workplace loyalty in Spain tend to keep their leave duration shorter as they do not want to challenge the existing workplace culture (Romero-Balsas et al., 2013). Research conducted in the UK showed that fathers may be reluctant to take leave because they do not want to give the impression that they are not

committed enough to their work and workplace (Fox et al., 2009; Kaufman & Almqvist, 2017). In short, when the workplace embraces hegemonic masculine traits, gendered norms become institutionalised (Haas & Hwang, 2007). In such workplaces, parental leave remains persistently gendered (Pettigrew & Duncan, 2020). Recent studies from Canada have shown that managers resist male employees taking parental leave, whereas they do not oppose female employees taking leave (Harvey & Tremblay, 2018; Pettigrew & Duncan, 2020).

Against this background, in which organisational ambitions conflict with employees' family care responsibilities, when a generous parental leave policy designed as an individual and earmarked entitlement is introduced, changing norms remains a challenge. Encouraging men to fulfil their parenting duties through an earmarked, non-transferable statutory entitlement normalises fathers' take-up of parental leave in the workplace, as the vanguard Norwegian example shows (Halrynjo & Lyng, 2017; Trude Lappegård, 2012). However, as parental leave take-up behaviour is multi-layered, the pace of change is highly dependent on workplace support.

Evidence from several single-country studies indicates that the size of the workplace also affects whether fathers take parental leave (Anxo et al., 2007; Bygren & Duvander, 2006; Lapuerta et al., 2011a). While the size of the workplace is found to be a significant indicator of fathers' parental leave take-up behaviour, the evidence on the direction of the effect depending on the size of the workplace contradicts this observation.

Although parental leave policies typically suggest initiating the leave request within five months of the intended start, small workplaces might need help replacing absent workers or redistributing the tasks among the remainder of the employees. Moreover, workplace pressure tends to be higher in small workplaces. In contrast, larger workplaces might find it easier to accommodate employee absences during parental leave (Bygren & Duvander,

2006; Marynissen et al., 2019; Samtleben et al., 2019). Studies from Germany have shown that there is a positive perception of large workplaces as they signal more security due to their low employee turnover (Hipp, 2018; Reskin & McBrier, 2000), and have interpreted this perception as a mechanism mediating the higher levels of parental leave take-up by fathers in large workplaces (Lapuerta et al., 2011a). However, there is also evidence of the reverse relationship between company size and parental leave take-up. A comparative study based on the European Establishment Survey on Working Time and Work–Life Balance 2004-2005 found that Slovenia, Belgium, and Luxembourg have a share of small workplaces that is above the EU average, and that levels of parental leave take-up are relatively high in small companies in these countries (Anxo et al., 2007). Similarly, contrary to expectations, a qualitative study from Spain argued that compared to fathers who are working in large companies, fathers who are working in small companies face less work-family conflict, and are better able to manage taking leave, as their employers have a greater capacity to replace the absent labour (Jurado-Guerrero et al., 2018).

Research also suggests that the composition of the workforce influences fathers' parental leave take-up behaviour. The critical workforce characteristics that have been widely cited in the literature are the gender composition of the workforce (female/male employee ratio), the proportions of white- and blue-collar employees in the workforce, and the age composition of the workforce. Research has also shown that fathers are more likely to take parental leave when they are employed in female-dominated workplaces (Anxo et al., 2007; Närvi & Salmi, 2019). In their 2006 study analysing the effects of workplace characteristics on fathers' parental leave take-up in Sweden, Bygren and Duvander (2006) found that fathers are more likely to take leave if their workplace has a high share of female employees. Similarly, a study by Lapuerta et al. (2011a) found that workplaces in Spain

with a higher share of female employees perform better in accommodating work-family conflict and supporting parental leave take-up. Moreover, studies conducted in Norway have shown that the impact of workplaces on fathers' parental leave take-up is insignificant unless the fathers are working in female-dominated industries such as education or health (Lappegard, 2008; Naz, 2010). There is also evidence for Luxembourg that levels of parental leave take-up are higher in female-dominated sectors such as education, health, and services (Valentova et al., 2022).

A high proportion of female employees in the workforce could be taken as a proxy for a family-friendly workplace culture. Earlier studies also stressed the relationship between female vs male-dominated workplaces and the workplace culture. It is assumed that male-dominated workplaces are more likely to promote a masculine work culture, and to measure the value of employees by their toughness and their commitment to the workplace (Billing, 2000; Haas & Hwang, 2007).

How workplaces address their employees' parenting responsibilities and whether they adopt a gender-egalitarian attitude and a family-friendly approach shapes fathers' parental leave decisions (Duvander & Johansson, 2012; Haas & Hwang, 2007; Lewis & Haas, 2005; Mun & Jung, 2018; Tanquerel & Grau-Grau, 2020). The gender composition of the workforce also relates to the sectoral segregation in a given country. When there is clear gender segregation across sectors of the labour market – e.g., when education is a female-dominated sector and construction is a male-dominated sector – variation in fathers' leave take-up behaviour is likely to be apparent across sectors. For example, a study of employees in Norway's highly competitive finance and banking sector found that fathers tend to postpone their parental leave and adapt their leave time to meet their clients' needs (Halrynjo & Mangset, 2022a). The same study stressed that mothers do not exhibit similar behaviour, as they tend to take longer periods of leave, and to start

relationships with new clients upon their return. Consequently, gendered parental leave take-up behaviours can become gendered career patterns, which is also observed in the case of Luxembourg.

As well as influencing fathers' parental leave decisions, workplace culture affects other workplace behaviours. For example, a study from Finland found that blue-collar workers are exposed to more negative attitudes from their managers than their white-collar colleagues are (Närvi & Salmi, 2019). In a study of workplaces in Switzerland, Liebig and Kron (2017) found a similar pattern in the attitudes towards white- and blue-collar employees. While white-collar employees are perceived as rare employees whom managers have to take care of, blue-collar employees do not receive the same level of attention (Liebig & Kron, 2017, p. 117). This division has been attributed in part to the salary differences between these two groups.

The division between blue- and white-collar workers is also related to another critical predictor of parental leave take-up: parents' educational background. Unfortunately, due to data limitations, education is not included in the analyses presented throughout the thesis. However, it is important to emphasise that education is still related to the measures used in this thesis. Research has shown that higher-educated parents have higher parental leave take-up rates (Bygren & Duvander, 2006; Geisler & Kreyenfeld, 2011; Lappegard, 2008; Trude Lappegård, 2012; Lapuerta et al., 2011a; Twamley & Schober, 2019). This educational divide may be related to two factors.

On the one hand, parents with higher educational levels might be more aware of the benefits of parental involvement in children's development (Liebig & Kron, 2017). On the other hand, because they have acquired higher skill sets, these parents are more likely to be higher earners, and are, therefore, more likely than less educated, lower-earning parents to be able to afford to take leave. However, this factor could also create a negative effect, as higher-

income parents are *penalised* with more significant income losses when taking parental leave [emphasis added].

The division between blue- and white-collar workers and its association with [fathers'] parental leave take-up is more applicable to workplaces operating in the private sector than to those in the civil service or the public sector (Jurado-Guerrero et al., 2018). This division is also related to the ambition levels of workplaces, which suggests that taking leave is more challenging for private sector workers than for public sector workers or civil servants.

In short, the research on differences in fathers' parental leave take-up based on workplace characteristics has identified some similarities and cross-cutting themes across countries with very different statutory entitlements. However, the question of whether employees taking parental leave has benefits for workplaces could be asked. One potential answer is that being a family-friendly workplace or promoting, rather than simply allowing, employees to take parental leave could have value for employers. In a review of 150 peer-reviewed articles on workplaces and parental leave, Kelly et al. (2008) found that employees' organisational commitment is mediated by the extent of work-family conflict they face. A number of studies have documented the negative correlation between increased work-family conflict and job satisfaction (Adams et al., 1996; Ergeneli et al., 2010; McCarthy et al., 2010; Ru Hsu, 2011). The persistence of this conflict translates into high labour turnover (Kelly et al., 2008). Consequently, providing a family-friendly workplace culture that respects employees' parenting responsibilities is considered a key element of efforts to attract and retain talent. Hence, investing in a supportive workplace culture is advantageous for workplaces.

The emphasis on workplace culture and the perceived managerial and collegial support relates to how gender is reproduced at the meso level. The evidence presented above highlighted various workplace features (corresponding to either soft characteristics such as culture or hard

characteristics such as size) that shape, define, or challenge the exercise of statutory entitlements. Thus, due to the mediating role of workplaces, the provision of a generous and flexible statutory parental leave entitlement may not be sufficient to encourage large numbers of workers to take parental leave. Even in workplaces that have a formal set of family-friendly policies there may, in practice, be unwritten rules in the form of managerial and collegial attitudes that override these formal policies (Liebig & Kron, 2017). On the other hand, the existence of a statutory parental leave entitlement combined with formal family-friendly workplace policies may set or re-set employees' expectations and demands (Amjahad et al., 2022; Lewis & Smithson, 2001). These findings demonstrate the value of this thesis and justify its strong emphasis on the interplay between workplaces and fathers' parental leave take-up behaviour based on the example of Luxembourg.

3.3. At the micro level: intra-household characteristics and fathers' parental leave take-up

Parental leave decisions are complex. While parental leave can be viewed as a macro-level statutory right or a meso-level workplace practice, individual parental leave decisions are taken at the household level based on the micro-level nature of the co-parents' relationship and the household characteristics. In this last section of the literature review on parental leave and fathers' parental leave patterns, I focus on the evidence on how individual, household, and partner characteristics influence fathers' parental leave take-up behaviours. There is a large body of research on the influence of individual characteristics, such as education level, income level, age, nationality, age at the time of birth, child's gender, seniority at work, and gender ideologies (E. Geisler & M. Kreyenfeld, 2018; Valentova et al., 2022; Van Breeschoten et al., 2019; Zhelyazkova & Ritschard, 2018). Qualities such as gender ideologies are not always easy to capture with administrative data, and not all surveys include questions on such issues. There are, however, qualitative studies that provide evidence on gender ideologies and attitudes towards leave take-up.

Fatherhood and motherhood are interrelated, especially in two-parent households (Mac an Ghail & Haywood, 2006; Twamley, 2019). Parental leave decisions are embedded in this relationship and leave take-up behaviour is attuned to its dynamics. Hence, to understand fathers' parental leave take-up behaviour, the role of the mother must not be overlooked. There is evidence that parental leave decisions, especially the details about the initiation and the duration of the leave, are often led by the mother in the household (McKay & Doucet, 2010). It has also been shown that a gamechanger in efforts to encourage fathers to take parental leave was the introduction of father-designated leave days (Margolis et al., 2019; Patnaik, 2019). In other words, parental leave was primarily seen as the domain of

mothers until daddy quotas or father-designated leave days were introduced. Nonetheless, the majority of the parents who take parental leave continue to be mothers (Karu & Tremblay, 2017; Koslowski et al., 2022).

Research has shown that the mother's financial power influences the father's parental leave take-up behaviour. A father who is partnered with a mother with who is a higher earner (or if the mother's earnings exceed the father's earnings) is more likely to take parental leave than a father who is in a partnership with a mother with low or no earnings (Ma et al., 2019). The co-parents' incomes in absolute and relative terms also affect their parental leave decisions. The parents' earnings capacities are likely to influence their leave decisions, mainly depending on the amount of leave compensation they can expect to receive (Margolis et al., 2019). The leave compensation amount and the existing gender pay gap levels are crucial factors in the effectiveness of parental leave policies, and especially in whether gender equality goals are met. The combination of a significant gender pay gap in which women earn less than men and poorly compensated parental leave is likely to contribute to a widening of the pay gap, as in such contexts, the incentive for a father to take leave is insufficient, because doing so would lead to significant income losses and potential damage to the household's financial well-being (Javornik & Kurowska, 2017; Leitner, 2003). The level of leave compensation and the allocation of resources and the co-parents' corresponding leave take-up strategies have been addressed in the bargaining power literature; see, for example, Antman (2014); Becker (1965); Becker (1962, 1981); Esping-Andersen and Schmitt (2019); Nitsche and Grunow (2018); Thébaud (2010). Further details of this literature are utilised in chapter 8 in an analysis of the initiation and the duration of fathers' parental leave in Luxembourg.

Earlier studies from Sweden showed that a father is more likely to take leave if he is partnered with a mother who has high earnings or is working in a high-grade job (Duvander & Johansson, 2012; Haas, 1992; Sundström &

Duvander, 2002). These studies also stressed the importance of the father's education level and seniority at work and showed that the workplace characteristics are sometimes more significant determinants than the partner's characteristics (Bygren & Duvander, 2006; Reich, 2011). Referring to the likelihood of taking parental leave, Sundström and Duvander (2002) concluded that "parents who are well-off are more inclined to do so" (p. 442). Research has also shown that the mother having a higher education level is associated with egalitarian beliefs, and is a motivator for the father to take parental leave (Kaufman & Almqvist, 2017; Lammi-Taskula, 2017). The mother's education level is also related to her employment potential and bargaining power. Accordingly, in their analysis of German fathers, Geisler and Kreyenfeld (2011) showed that a father is more likely to take leave if he is partnered with a higher-educated or older mother than if he is partnered with a lower-educated or younger mother. Some studies have shown that higher-educated mothers tend to return to the labour market faster than lower-educated mothers (Stahl & Schober, 2017). For example, in Sweden, the estimated duration of childcare leave is around 80 days for fathers with primary education only and is 105 days for fathers with a master's degree (Eriksson et al., 2022).

In contrast, there is a contradictory relationship between the mother's education level and the number of parental leave days taken: mothers with the lowest education level take about 300 days of parental leave, whereas the estimated duration of leave for higher-educated mothers is 232 days (Eriksson et al., 2022). The mother's career aspirations and established labour market position or potential are likely to be the leverage that encourages her male partner to become more involved in childcare and to take parental leave. A study by Eriksson et al. (2022) also found that the father's education level has a relatively small effect on whether he takes parental leave, as workplace characteristics appear to be a more significant determinant of fathers' leave

take-up behaviour. Similarly, a recently published study found that in Luxembourg, parents' leave decisions are influenced not only by the characteristics of their own workplace, but by those of their partner (Valentova et al., 2022). The evidence presented above of the direct and the indirect role of workplaces in the utilisation of parental leave entitlements also confirms the value of this thesis, which places a strong emphasis on the role of workplaces.

Chapter 4: Luxembourg context

This section is presented in three parts. The first part provides a background on Luxembourg as a country. The second part focuses on welfare state regime and how family policies are administrated. The third part explains the parental leave system and the details of 2016 reform. As parental leave and 2016 reform are analysed in the following three studies, the complete details are provided in this chapter. In the subsequent chapters, policy is only briefly summarised.

4.1. Population and labour market dynamics

Luxembourg is a country with 645,000 inhabitants, 47 per cent of whom are foreign nationals (Le Gouvernement du Grand-Duche de Luxembourg, 2022). In addition to its residents, there are about 197,000 cross-border commuters who reside in neighbouring countries (Belgium, France, and Germany) but are employed in Luxembourg. Cross-border workers are registered in the Luxembourg social security system, and they are eligible for the statutory entitlements that are attached to employment status. The residents of Luxembourg come from 170 countries across the globe. The Portuguese community comprises the majority of this diverse population. Of the entire population of Luxembourg, 14.88 per cent are Portuguese, while 7.6 per cent are French, 3.7 per cent are Italian, 3 per cent are Belgian, and 2 per cent are German (Le Gouvernement du Grand-Duche de Luxembourg, 2022). This distribution is respected in the analyses, and the nationality variable is reclassified as native Luxembourgers, Portuguese, citizens of neighbouring countries, other EU citizens, and other non-European citizens.

In Luxembourg, immigrants make up a very large share of the population, and this share has been growing over recent decades. Between 1999 and 2008, 13 per cent more immigrants (as a proportion of the entire population) were living in Luxembourg than between 1970 and 1979. The latest figures by STATEC, the National Institute of Statistics and Economic Studies of the

Grand Duchy of Luxembourg, show that the percentage of foreigners in Luxembourg's population increased from 21 per cent in 1991 to 26 per cent in 2001, 43 per cent in 2011, and 47.2 per cent in 2021 (STATEC, 2021). The largest foreign population group is from Portugal. This 5-decade-long history of immigration from Portugal started in the 1960s due to increased labour demand in the steel industry in Luxembourg (Albert et al., 2013).

Consequently, of the entire population of Luxembourg, 14.88 per cent are Portuguese, while 7.6 per cent are French, 3.7 per cent are Italian, 3 per cent are Belgian, and 2 per cent are German (Le Gouvernement du Grand-Duché de Luxembourg, 2022). Nearly 85 per cent of the foreign-born population are citizens of other EU member states, while third-country nationals account for about 7 per cent of Luxembourg's inhabitants (Petry & Sommarribas, 2018). Of the entire population (around 643,000 people), 55,300 are non-EU nationals. This distribution is respected in the analyses, and the nationality variable is reclassified as native Luxembourgers, Portuguese, citizens of neighbouring countries, citizens of other EU countries, and non-European citizens. Although immigration is not a topic of interest in this thesis, it is captured using the nationality variable. Any study of Luxembourg that does not distinguish between native Luxembourgers and other nationality groups would fail to do justice to the country's unique situation.

Luxembourg's economy is highly praised thanks to its prosperity, strong institutions and policies, capacity to generate jobs, low unemployment, and ability to attract immigrants (OECD, 2019). However, there are disparities in education and wealth between native Luxembourgers and the immigrant population. Luxembourg's labour market is highly skill-intensive, which makes the education and skills disparities between the native and the foreign-born population visible (Jardak & Ayerst, 2022). Nearly one-fourth of the immigrant population are at risk of poverty, compared only about 10 per cent of the native Luxembourg population (OECD, 2019). Relatedly, an

important area of development for Luxembourg is to explore inclusive labour market policies and to eradicate the unemployment trap of low-income households (OECD, 2019). Access to the labour market continues to be a challenge, especially for third-country nationals. Statistics indicate that the unemployment rate is higher among third-country nationals, and that they are clustered in accommodation and support service activities, such as wholesale and retail and motor repair services (Petry & Sommarribas, 2018). Research also shows that Portuguese nationals tend to have lower-socioeconomic status than native Luxembourgers and other immigrants from neighbouring countries (Gutfleisch, 2022; Hildebrand et al., 2017). According to a 2017 analysis, “Portuguese immigrants are lagging behind Luxembourg nationals in income, employment and educational attainment” (Hildebrand et al., 2017, p. 305). By contrast, German and French immigrants tend to be high-skilled workers who face few or no language or cultural barriers (Gutfleisch, 2022). An analysis of data from the European Values Survey showed that Portuguese immigrants resemble the population of Portugal more than Luxembourg natives, whereas immigrants from France, Germany, and Belgium seem to be better adapted to Luxembourg (Kankaraš & Moors, 2012).

It is important to note that the empirical evidence on gender norms and attitudes in Luxembourg is rather limited. An earlier study analysing data from the 1999 European Values Survey showed that Luxembourg was one of the most traditional countries in terms of attitudes towards women’s labour force participation (Valentova, 2008). The analyses showed a strong preference for making a clear distinction between the roles of men and women, with men performing paid work and women belonging in the home (Valentova, 2008). The underlying motivation leading to this solidly negative perspective is a concern about the well-being of preschool children. A later analysis of attitudes towards gender roles also found that the gender expectations of Luxembourg society are closest to those in Germany, France,

Belgium, and Spain, which share the legacy of the Bismarckian welfare regime (M Valentova, 2011). These traditionally gendered attitudes seem to be reflected in the labour force composition, as analyses of data from the Labour Force Survey showed a negative association between the number of children and women's labour force participation in Luxembourg (Margherita et al., 2009).

As the evidence from a number of different studies indicate, there are disparities in the economic capacity and the cultural attitudes and habits among different population groups in Luxembourg. The country's diverse population groups also have a diversity of beliefs and behaviours, with the differences being especially large between Portuguese nationals, third-country nationals, and native Luxembourgers. While immigrants from neighbouring countries are much more similar to native Luxembourgers both socio-economically and culturally, Portuguese and other nationals tend to differ significantly from the native population. These variations demonstrate the importance of including a nationality variable among the explanatory variables when studying social and economic phenomena in Luxembourg. Because parental leave is an employment-related benefit, it is essential to take into account who works where and for how long. A gender equality measure that considers who thinks what and how they behave should also be included. Throughout the analyses in this thesis, these disparities are respected, and a nationality variable that distinguishes between native Luxembourgers, immigrants from neighbouring countries, Portuguese, other European citizens, and third-country nationals is used.

Luxembourg is a wealthy country with the highest purchasing power among the EU-27 countries (STATEC, 2021). As of 2019, the mean disposable income per household was €6,475 per month and the median disposable income per household was €5,454 per month. The per-adult equivalent of disposable income is €3,545 per month and €3,007 per month, respectively

(STATEC, 2021). Public spending on family benefits constitutes 3.3 per cent of Luxembourg's GDP, which is among the highest spending levels in Europe (Eurostat, 2020b). The cash benefits in this domain are equal to 2.35 per cent of the country's GDP, which is the highest proportion among the EU-27 countries (OECD, 2022b). Parental leave benefits – which are classified under family benefits along with maternity leave, unemployment benefits, and pensions – are funded through general taxation within the state budget (Berger & Valentova, 2021; Kerschen, 2019).

4.2. The welfare state regime and the family policy landscape

The relationship between engagement in work and the provision of social benefits is at the core of modern welfare states (Lewis & Giullari, 2005). Whether the welfare state is based on a strong, moderate, or weak male breadwinner model (Lewis, 1992); whether the welfare state approach promotes a dual-breadwinner/dual-carer or a dual-breadwinner/state-carer model (Pfau-Effinger, 2005); and whether the emphasis is on family support or on a market-oriented or dual-earner support model (Korpi, 2000) defines the extent to which a welfare state enables or obstructs the realisation of an egalitarian model of work-life reconciliation for both men and women. Policies that relieve the burden of unpaid care work and enable equal access to paid work for men and women lead the way through the defamilialisation and degenderisation of welfare states (Kurowska, 2018; Saxonberg, 2013).

Luxembourg's welfare state was established during the first decades of the 1900s with the introduction of the country's first social insurance system (Kerschen, 2019). The initial design followed the Bismarckian model, and all workers who earned less than a specific wage were insured against sickness, work accidents, invalidity, and old age. Two decades after the initial implementation, the wage limit condition was revoked in the 1930s, and the social insurance system was expanded to cover all blue-collar and white-collar workers. At that time, child benefits and unemployment allowances

were also introduced. In the post-WWII period, during the 1950s and 1960s, the insurance coverage was expanded to include civil servants and agricultural workers, as well as self-employed workers (Kerschen, 2016, 2019).

In the second half of the 20th century, Luxembourg's welfare regime had more universalist traits and followed the Beveridgean doctrine (Kerschen, 2019). Starting in the 1970s, Luxembourg developed its "tripartite model": a welfare model that brings together the government, employer organisations, and trade unions when developing reforms. This period coincided with Luxembourg's shift away from the steel industry and towards a service-intensive economy. Policies addressing the needs of families with young children became more salient from the late 1990s onwards (Bia et al., 2021; Kerschen, 2019). These developments, which will be covered in more detail in the next section, took place in line with work-life reconciliation directives at the European Union level.

Historically, Luxembourg's welfare provision was built on a male breadwinner model, with other family members acquiring their rights through the "head" of the household. The joint taxation system – which was the only tax system in Luxembourg until 1 January 2018 – treated (and still treats if desired) married couples as a single unit (Le Gouvernement du Grand-Duché de Luxembourg, 2017a). This system favours a gender pay gap within couples, as it is based on the average income, with a greater income difference resulting in greater tax relief (Bia et al., 2021). From the 2018 tax year onwards, married couples have had the option to choose between individual and joint taxation (Le Gouvernement du Grand-Duché de Luxembourg, 2017a). Until the early 2010s, a pro-familialistic welfare regime approach was dominant, which led to low levels of female labour market engagement. Female labour market inactivity due to family responsibilities was as high as

30 per cent in 2004 (Bia et al., 2021). However, there was a significant expansion of family policies in the following decade.

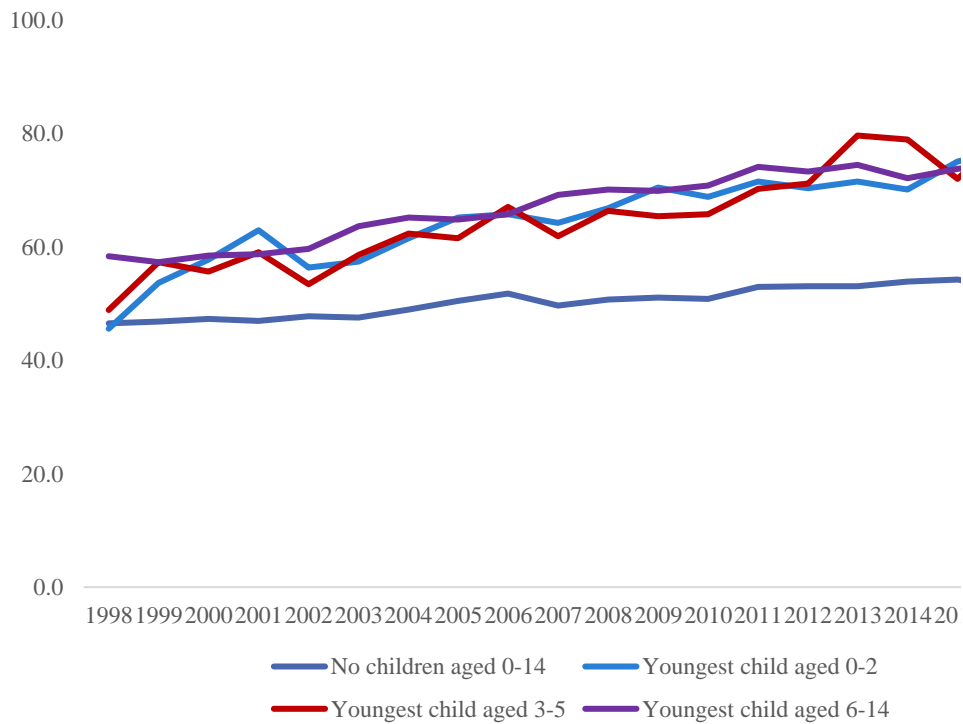
4.3. Policy developments concerning work-life reconciliation and care for young children in Luxembourg

The first work-life reconciliation parenting-related leave policies were introduced in Luxembourg in the 1960s; see Table 1. The policy developments in the first two decades of the 21st century have moved in the direction of increased individual entitlements and have more gender-equal qualities that they did in the past. Research has shown that in contrast to the overall welfare regime, the family policy realm in Luxembourg is moving away from the conservative tradition and towards more egalitarian values (Thévenon, 2011; Valentova, 2018). The well-being of children and the provision of equal opportunities for them have become more prominent policy goals, and parental leave policies have become the policy arena where gender equality and child well-being are concurrently addressed (Kerschen, 2016, 2019; Marie Valentova, 2011). The explicit focus on fathers in parental leave policies has increased as Luxembourg has become a country that promotes gender-equal values in its social policies.

Below is a comparison of the employment rates of women with children under age 14 and women without children in the same age group (**Figure 2**). The period presented covers the same time window as the parental leave enacted in Luxembourg. The figure shows an increasing trend in maternal employment over the past two decades in Luxembourg. Although women with children aged 0-2 have the lowest employment rates (54 per cent in 2018), the women in the other groups have relatively high employment rates, especially after 2016. By 2018, the maternal employment rate for women whose youngest child was aged 3-5 or aged 6-14 was, respectively, 75.2 and 77.4 per cent. **Figure 3** illustrates the employment patterns of couples with

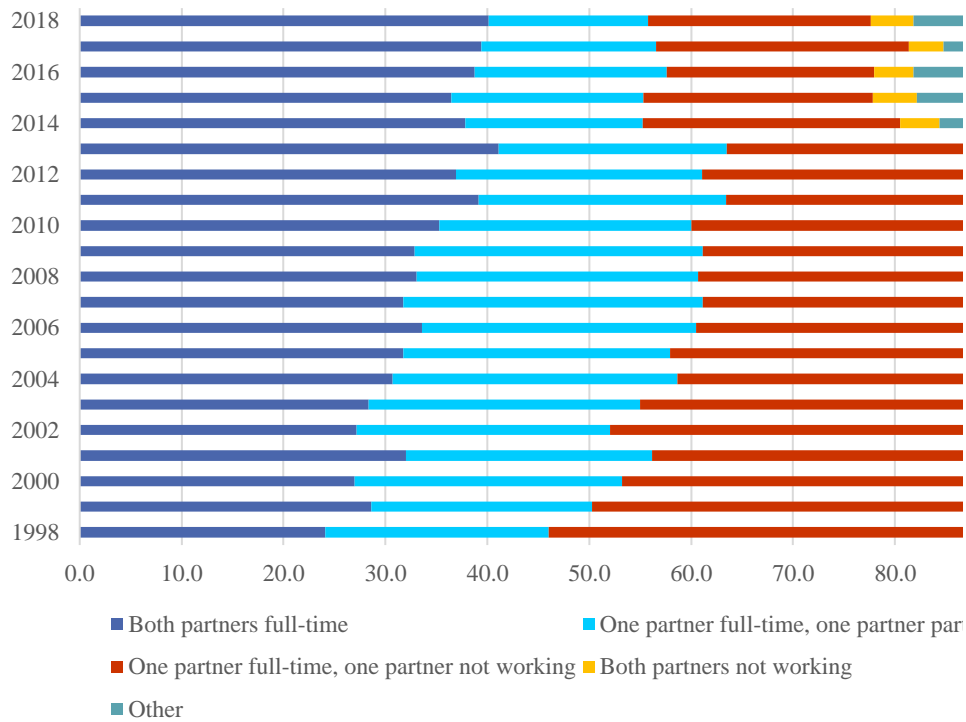
children during the same period. This figure shows a decrease in single-earner households and an increase in various forms of dual-earner households.

Figure 2 Maternal employment rates by age of youngest child, 1998 - 2018, Luxembourg



Source: OECD Family Database. 2022.

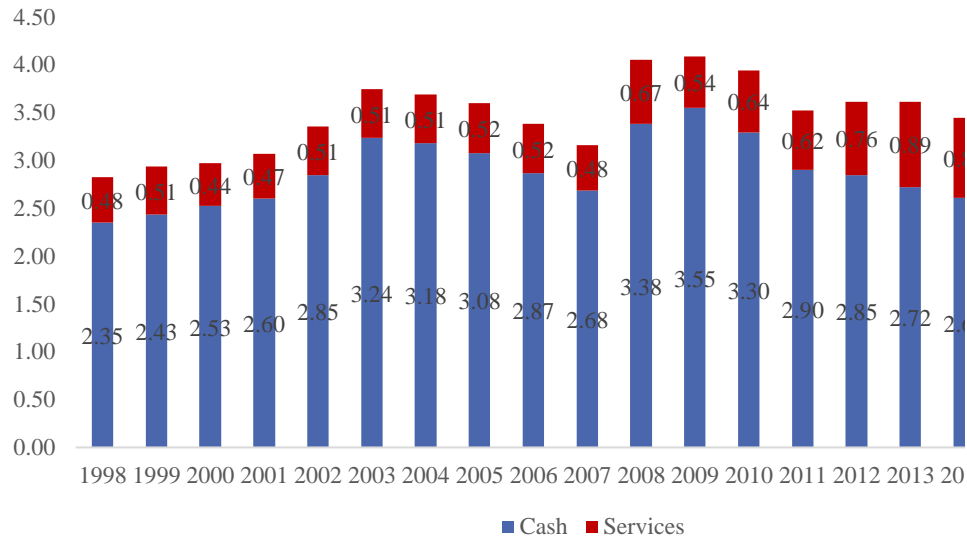
Figure 3 Employment patterns for couples with children, 1998 - 2018, Luxembourg



Source: OECD Family Database. 2022.

Luxembourg spends about 3 per cent of its GDP on family benefits in the form of either cash benefits or services (see **Figure 4**), making it one of the most generous countries in the EU and in the OECD. In 2017, the per cent share of GDP allocated for cash benefits and services to families was around 3.30 per cent, compared to the EU average of 2.28 per cent and the OECD average of 2.12 per cent.

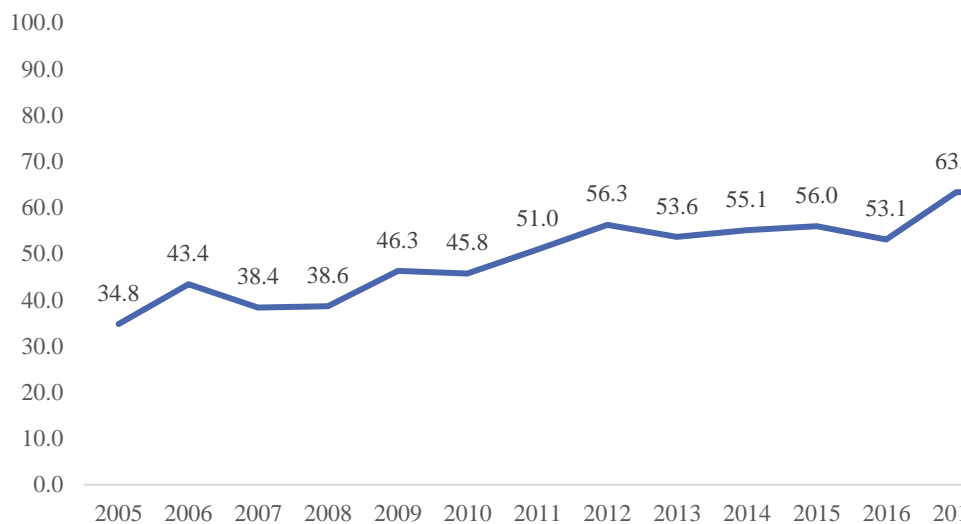
Figure 4 Public spending on family benefits in cash and services in Luxembourg, in per cent of GDP, 1998-2017



Source: OECD Family Database 2022.

In parallel with the developments in the family policies domain and the increase in maternal employment, the enrolment rates in early childhood education and care services for children under age two have been rising in Luxembourg (see **Figure 5**). In the last 15 years, the enrolment rates in service-based care increased from 34 per cent to 60 per cent for children under age two. An important detail to consider when looking at the childcare participation rates of children in this age group is that there are discrepancies across income groups. The estimations show that the enrolment rate for the lowest income group is 47 per cent, compared to 69 per cent for the median income group and 64 per cent for the highest income group.

Figure 5 Percent of children enrolled in early childhood education and care services (ISCED 0 and other registered ECEC services), 0- to 2-year-olds, 2005-2019

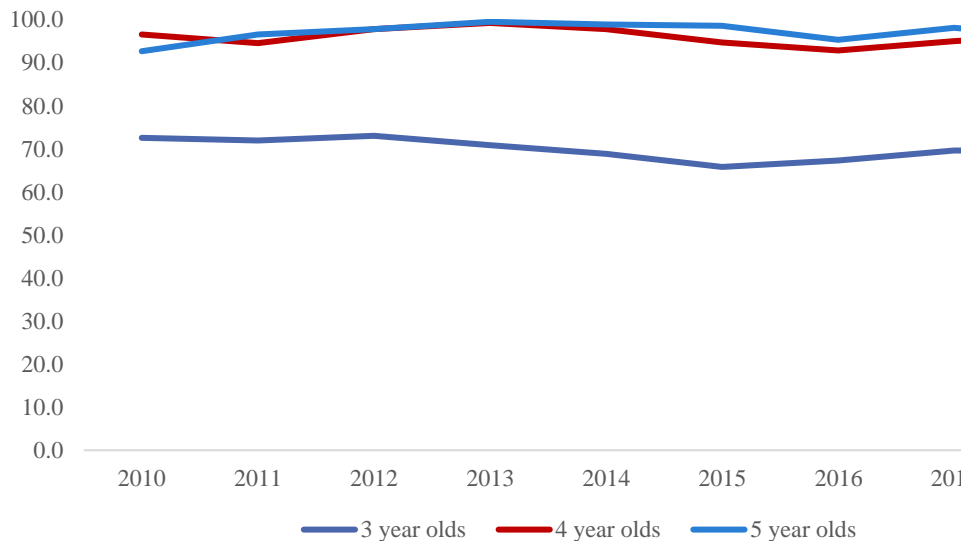


Source: OECD Family Database 2022.

Compulsory schooling starts at age 4 in Luxembourg. The legislation requires that every child who turns 4 years of age before 1 September must attend school. There are several childcare services available to families with children under age 4. In the current system, families can utilise nurseries (for children aged 3 months to 4 years), mini-crèches (for children aged 0 to 12 years, accommodating up to 11 children), day nurseries (for children aged 2 months to 8 years), day centres (for children aged 4 to 12 years, after school hours), maison relais [drop-in centres] (for children aged 3 or 4 to 12 years, open from 7 a.m. to 7 p.m.), and parental assistants. These services differ in terms of their operating hours, target age groups, and formats. Up to 2009, there were no financial subsidies for childcare costs (Bia et al., 2021). The childcare services voucher (Chèques service accueil or CSA) was introduced as a statutory subsidy to cover the childcare expenses or extra-curricular activities for children between ages 0 and 12 (Le gouvernement du Grand-Duché de Luxembourg, 2021). By contrast, there was a childcare allowance that was

intended to encourage one of the parents to provide home care for the child. Since this cash-for-care scheme was adversely affecting maternal employment, it was abolished in 2015. In 2017, the childcare service voucher (CSA) scheme underwent a reform. Since then, children between the ages of 1 and 4 have had access to 20 hours of free weekly childcare (Site du ministere de l'Education nationale de l'Enfance et de la Jeunesse, 2021). As of 2018, 87.5 per cent of children aged 3-5 were enrolled in Luxembourg preschools. **Figure 6** below depicts the age breakdown. It shows that nearly all 4- and 5-year-old children are enrolled in preschool education in Luxembourg. The enrolment rate for 3-year-old children has remained below 70 per cent, which is lower than the EU average of 94, 90, and 81 per cent, respectively. In Luxembourg, the average number of hours of informal childcare used per week is 13.3 for children under age 2 and is 11.6 for children aged 3-5, which is lower than the EU average of 15.8 and 12.1 hours/week for the respective age groups (OECD, 2022a). These numbers (lower ECEC participation and lower use of informal care compared to the EU average) suggest that in Luxembourg, the amount of care provided by the parents may be higher than the EU average.

Figure 6 Percent of children enrolled in early childhood education and care (ISCED 2011 level 0) or primary education (ISCED 2011 level 1), 3- to 5-year-olds, 2005-2018



Source: OECD Family Database 2022.

The figures above convey a similar message. Over the last two decades, Luxembourg has undergone significant policy developments in the area of work-life reconciliation. Coming from a historically traditional welfare state with a familialistic approach in which men are expected to engage in paid work while women remain in the household, childcare is seen as a private household matter that is often procured by the mother. However, despite Luxembourg's conservative nature, over the past two decades, maternal employment has increased and rates of enrolment in early childhood education and care services have risen. In parallel, parental leave was introduced. In an environment dominated by conservative values, the introduction of parental leave is a significant move towards gender equality (Marie Valentova, 2011; Zhelyazkova & Ritschard, 2018). A 2003 comparative analysis of European parental leave policies concluded that Luxembourg was an outperformer with the highest attractiveness score (De Henau et al., 2007), the details of which I present in the next section.

Table 1 Family policy reforms in Luxembourg

<i>Time</i>	<i>Policy domain</i>	<i>Intervention</i>	<i>Benefit type</i>		<i>Motivation</i>	<i>Driving force</i>
	<i>16 April 1928 – ratifies to the ILO Maternity Protection Convention, 1919 (No. 3)</i>					
1962	Work-life reconciliation	Introduction of 2-day paternity leave	Lump benefit	sum		
1969	Work-life reconciliation	Introduction of job-protected maternity leave paid at 75% of earnings	Lump benefit	sum		
1974	Work-life reconciliation	100% replacement of earnings during maternity leave (with a lower ceiling equivalent of social minimum income and upper ceiling limited to five times of this amount)	Lump benefit	sum		
1998-99	Work-life reconciliation	Parental leave	Lump benefit	sum	Increase women's employment	Council Directive 96/34/EC
2005-12	<i>Family benefits</i>	Income taxation and child bonus	Restructuring and expansion		Vertical distribution	Equality
		Abolition of family benefits for people over 18	Retrenchment		Individualisation of social rights	Financial sustainability
	<i>8 April 2008 ratifies to the ILO Maternity Protection Convention, 2000 (No. 183)</i>					
	<i>Maternity leave period becomes 16 weeks</i>					
	Work-life reconciliation	Childcare service voucher	Expansion		Social citizenship	Responding the working parents'

					needs; restructuring of service providers
2013 -	Family policy	Family benefit as children's universal rights	Expansion and retrenchment	Individualisation of social rights	Ideology
	Work-life reconciliation	Parental leave for working parents	Restructuring: wage replacement, coverage expansion, eligibility relaxation	Equality between men and women	Ideology

Adapted from Kerschen, 2019 and OECD (2021)

4.4. Parenting-related leave policies

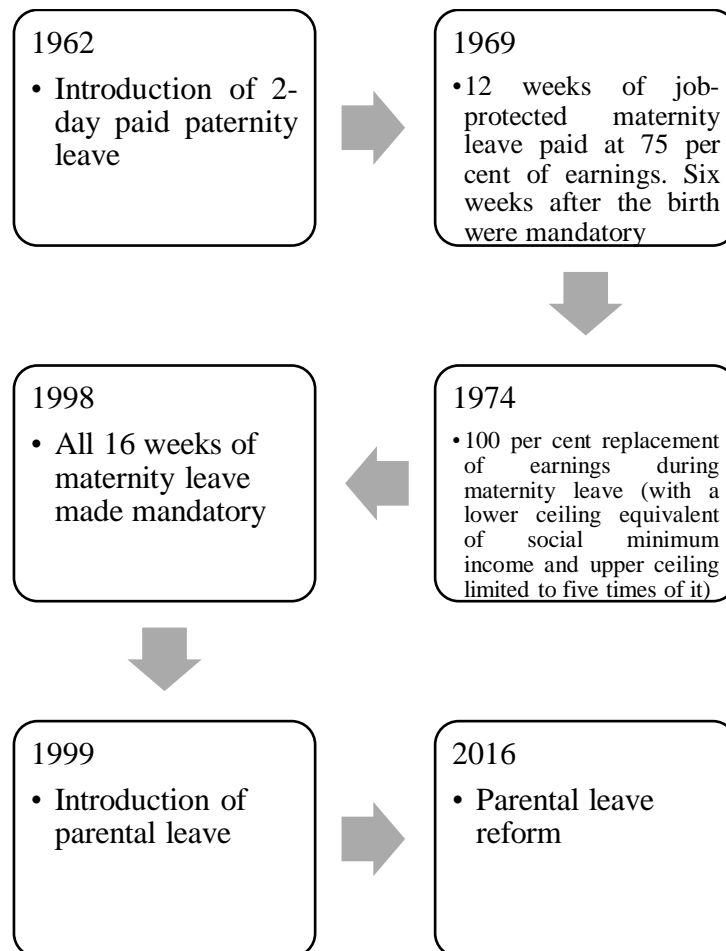
Since the early 1960s, paternity and maternity leave have been available in Luxembourg. The scope of these policies was reformed over the years. In 1999, parental leave was introduced for the first time. In 2016, the parental leave policy was reformed.

As shown in **Figure 7**, following the implementation of a two-day paternity leave, a maternity leave scheme was introduced. This scheme initially covered 75 per cent of wages, and later offered full coverage. In its current form, the duration of maternity leave is 20 weeks, and it starts eight weeks before childbirth (Le gouvernement du Grand-Duché de Luxembourg, 2017b). To be eligible for maternity leave benefits, the working mother (either as a salaried employee or self-employed) must have contributed to the mandatory sickness and maternity insurance fund for at least six months during the year before the start of maternity leave. The leave benefits are covered by the health insurance fund, and the amount paid during the leave cannot be less than the social minimum wage and cannot be more than five times the social minimum wage (approximately €11,009.65 per month) (Berger & Valentova, 2021). As maternity leave is effectively classified as a work period, the mother does not lose any of her annual leave, and her position is protected by law.

Fathers are granted paternity leave, which the law terms “leave due to extraordinary circumstances” (*congé extraordinaire*) (Le gouvernement du Grand-Duché de Luxembourg, 2018b). As of 2022, this is a 10-day leave. The first two days of this leave are fully paid by the employer, and the costs of the leave for the remaining eight days are reimbursed to the employer by the state (Berger & Valentova, 2021). The same upper and lower ceilings for maternity leave payments apply to paternity leave as well; thus, the reimbursed amount cannot be higher than five times the social minimum wage. As both types of leave are designed as employment-related benefits, contributions to the social

security system are mandatory to receive them, and people who are unemployed are excluded from this system.

Figure 7 Historical outlook of maternity, paternity, and parental leave reforms in Luxembourg



Source: OECD (2021)

4.4.1. Luxembourg’s parental leave policy and 2016 reform

Luxembourg’s first-ever parental leave policy was introduced in 1999 within the scope of the Council Directive 96/34/EC of 3 June 1996 on the framework agreement on parental leave (Chambre des Salaries Luxembourg, 2017). The country’s parental leave policy is designed as a paid, non-transferable entitlement that is contingent on the parents’ social security contributions

(Travail Emploi et Économie sociale et solidaire, 1999). The leave was originally offered in two modes: 6 months full time or 12 months part time. It was an individual entitlement, meaning that each parent's eligibility for the leave was evaluated separately, and the eligibility status of one parent would not affect that of the other parent. Moreover, parents were not allowed to transfer their designated leave time to each other. The leave was paid at a flat-rate equivalent of the minimum social wage, and eligibility was based on the parents' employment status. Parents were required to have contributed to the social security system for at least 12 months prior to the start of their parental leave, and to have been working a minimum of 20 hours per week in the period before the leave. In addition, during the 12 months before starting the leave, parents had to have been working for the same employer (Zhelyazkova et al., 2014). The leave was formulated as first and second parental leave periods. The first leave had to be taken immediately after the end of the maternity leave. The second leave could be taken before the child turned five. While self-employed parents were eligible as long as they met the criteria, unemployed parents were excluded from access to parental leave.

After 17 years, the parental leave policy underwent a reform that was implemented on 1 December 2016. The new parental leave regime has retained the essence of the previous system: parental leave remains an individual, non-transferable, paid entitlement contingent on social security contributions. However, the reform altered the format of the leave. The key areas of change are related to eligibility, compensation, mode, and coverage. Table 2 below provides a summary of the key characteristics of the parental leave policy in the period before and after the reform.

Under the 2016 reform, the eligibility rules have been relaxed. The criteria that parents had to work a minimum number of hours per week and had to work for the same employer were modified. Following these changes, parents who worked between 10 and 20 hours per week (classified as marginal part-

time workers) became eligible for parental leave. The requirement that parents worked for the same employer during the 12 months before they took the leave was abolished. However, the requirement that parents have a minimum of 12 months of uninterrupted social security contributions remains in effect. A crucial detail is the “use-it-or-lose-it” design. The legislation now requires one of the parents to take the leave immediately after the end of maternity leave. Once this leave has been taken, the other parent gains access to leave. This means that although eligibility is evaluated individually, the access to leave is not as straightforward. Once the second parent gains access to the leave, he or she can take it up to the child’s sixth birthday. In other words, the 2016 reform expanded the coverage period for parental leave. Therefore, the take-up of the leave cannot be studied without taking both parents into consideration, which constitutes the backbone of the analyses presented throughout this thesis.

Table 2 Comparing Luxembourg's parental leave regime, before and after the 2016 reform

<i>Parental leave</i>	<i>1999 – 2016</i>	<i>1 December 2016 - present</i>
Duration of leave	6 months full-time or 12 months part-time	6 months or 4 months full-time or 12 months or 8 months part-time Each parent can take between 4 and 20 months depending on their employment hours and the leave option they choose
Type of entitlement	Individual entitlement	Individual entitlement
Payment	A flat-rate payment of €1,778 per month.	The benefit paid during Parental leave is <u>calculated as a function</u> of the income and hours worked on average during the 12 month period preceding the start of the leave and the leave option chosen, e.g. full-time workers taking the full-time leave option receive between €2,256.95 per month (the minimum social wage) and €3,761.59 (the minimum social wage increased by two-thirds).
Funding	Funded from general taxation	Funded from general taxation
Flexibility in use	<ul style="list-style-type: none"> Parents may take 12 months leave on a half-time basis, subject to their employer's agreement, in which case the benefit paid is halved. 	Parents may choose between different length and payment options depending on their employment situation: <ul style="list-style-type: none"> Parents working 40 hours per week <ul style="list-style-type: none"> Full-time leave of 4 or 6 months Half-time leave of 8 or 12 months Fractioned leave: 4 months within a maximum period of 20 months

- The two parents cannot take full-time parental leave at the same time, but could do so if they take it on a part-time basis
- If both parents request their parental leave at the same time, priority is given to the parent whose surname comes first in alphabetical order.
- Parents can take the leave until their child turns 5
 - Fractioned leave: one day per week for up to 20 months
- Parents working 20 hours or more per week
 - Full-time leave of 4 or 6 months
 - Half-time leave of 8 or 12 months
- Parents working 10 hours per week or on apprenticeship contracts
 - Full-time leave of 4 or 6 months
- Parents can take leave at the same time
- Parents can take the leave until their child turns 6

Eligibility

- All employees are eligible if they have worked for at least one year with the same employer (for at least 20 hours per week), and if they take care of their child at home.
- Self-employed persons are eligible for parental leave if they have been self-employed for at least one year for at least 20 hours per week
- Every parent has the right to parental leave even if the other parent is not working unless the non-working parent is receiving the child-raising allowance (allocation d'éducation).
- Parents must be affiliated to the Luxembourg social security system at the time of the birth or of the adoption of a child and have been employed without interruption for at least 12 continuous months immediately preceding the beginning of the parental leave. The same conditions apply for self-employed workers, who also belong to the Luxembourg social security system.
- Parents must be working for a minimum of 10 hours per week.
- In the case of a change of employer during the 12-month period preceding parental leave or during parental leave, the leave may be granted subject to the agreement of the new employer.
- For parents on permanent contracts with a probationary period, the right to parental leave cannot take effect and the leave may be requested only after the end of the probationary period.
- Parents whose spouse does not work can take leave, but it must start within 3 weeks of the birth/adoption of the child.
- Same-sex parents are eligible.
- Workers on a short-term contract are eligible provided that the end of the short-term contract is subsequent or concomitant to the end of the parental leave.
- Unemployed people are not eligible to parental leave.

Leave compensation was also increased under the 2016 reform. In the new parental leave regime, the compensation is formulated as a function of the number of working hours and the average salary prior to the start of the leave. As shown in **Table 3**, leave compensation varies depending on the type of leave taken and the number of hours the parent worked. In a logic similar to that for maternity leave payments, there is an upper and a lower ceiling to the payments that parents can receive during their leave. The parental leave compensation cannot be lower than the social minimum wage and cannot be higher than 5/3 of it. When calculating the compensation amount, the parent's average salary over the past 12 months before the start of parental leave is taken into account. This is based on a parent's actual salary. For example, imagine that a parent was working 40 hours a week, and thus full time, with a salary of €3,000 per month between February and June, and then switched to working part time and earning €1,500 a month from July onwards. Assume that this parent wants to start taking parental leave next February. In October, the parent notifies his or her employer of this request. When starting the leave in February, the parent's average number of working hours and average salary are calculated based on the fact that she or he was working full time for four months and part time for eight months during the 12 months preceding the start of his or her parental leave (Le Gouvernement du Grand-Duché de Luxembourg Zukunftskeess Caisse pour l'avenir des enfants (CAE), 2022).

The leave compensation varies depending on the type of leave taken and the number of hours the parent worked. In a logic similar to that for maternity leave payments, there is an upper and a lower ceiling to the level of payments that parents can receive during their leave. The parental leave compensation cannot be lower than the social minimum wage and cannot be higher than 5/3 of it. As is shown in the table below, for a full-time working parent, full-time leave compensation would range from €2,313 to €3,855.

Table 3 Parental leave compensation (gross monthly amount in euros)

<i>Weekly working hours</i>	<i>Full-time leave</i>		<i>Part-time leave</i>		<i>Fractioned leave</i>	
	Min	Max	Min	Max	Min	Max
40	2,313.38	3,855.63	1,156.69	1,927.82	451.39	752.32
30	1,735.04	2,891.72	867.52	1,445.86	n.a.	n.a.
20	1,156.69	1,927.82	578.35	963.91	n.a.	n.a.
10	578.35	963.91	n.a.	n.a.	n.a.	n.a.

Source: Le Gouvernement du Grand-Duché de Luxembourg Zukunftskeess Caisse pour l'avenir des enfants (CAE) (2022)

The reform introduced new leave modalities. As before, parents can take the leave in a 6-month full-time mode or in a 12-month part-time mode. Depending on the length of the parent's contract, the full-time leave could last four months, and the part-time leave could last eight months. This is because beneficiaries are not allowed to take parental leave if their employment contract is shorter than the expected duration of the leave. Additionally, two new alternative leave take-up modes are available. The new options give parents the option of taking leave over a 20-month window in which they can either reduce their working days from five to four per week or they can choose to be on leave for any four months (with no requirement that these months are consecutive) over this 20-month period. This form of "fractioned leave" is only available to parents who work full time.

In short, the 2016 reform expanded eligibility, increased compensation, improved flexibility, and extended the coverage period. The characteristics of the reform are discussed in an examination of the impact of the reform in Chapter 4.

4.4.2. Fathers' parental leave take-up in Luxembourg

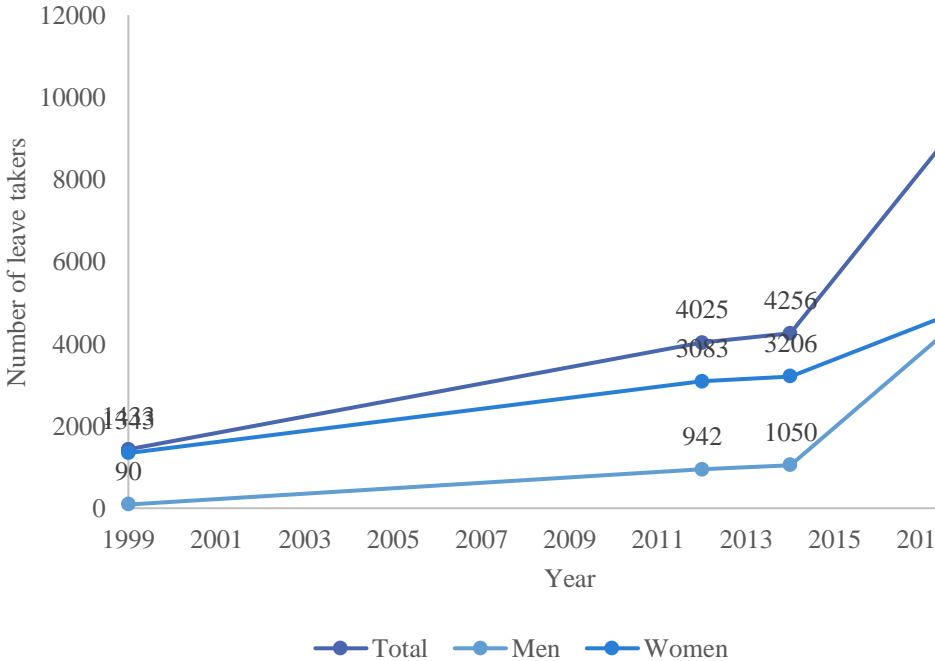
It is crucial to note that the evidence on fathers' parental leave take-up in Luxembourg is not exhaustive, which increases the value of this thesis, as it contributes to the expansion of the evidence base for an understudied field and country. Luxembourg's parental leave policy was introduced in 1999 in compliance with the European Commission's first work-life reconciliation directive released in 1996. The leave is designed as a paid, individual, non-transferable entitlement. Compared with fathers in other European countries, fathers in Luxembourg are offered a relatively long, non-transferable parental leave entitlement (Koslowski et al., 2022; Moss, 2011; Zhelyazkova & Ritschard, 2018).

An analysis of fathers' parental leave take-up in the early 2000s in Luxembourg found that at that time, parental leave take-up rates among fathers were about 14 per cent (Zhelyazkova & Ritschard, 2018). They also found that fathers' leave take-up increased around the eighth to the ninth month after childbirth, coinciding with the end of the maternity leave and of the mother's parental leave (when taken in full-time mode, which is 6 months). Their calculations showed that leave take-up was highest among fathers with the lowest income, as their opportunity costs were lower. However, they did not find a significant change for fathers whose earnings were around the leave compensation rate. The analyses were for the initial parental leave, which was introduced in 1999. The compensation for this leave was paid at a flat-rate equivalent of the minimum social income, which over the years of implementation reached a maximum of €1,800 (Zhelyazkova & Ritschard, 2018). Regarding couple strategies, the cluster analyses showed that after childbirth, fathers are more likely than mothers to continue their full-time career. Mothers seem to have more alternative trajectories than fathers after transitioning to parenthood (Zhelyazkova, 2014). For example, after entering parenthood, 12 per cent of mothers become

inactive, as opposed to less than 1 per cent of fathers; and 15 per cent of mothers reduce their working hours, compared to 1 per cent of fathers (Zhelyazkova, 2014). In parallel with this evidence, a recent study found that parental leave take-up has detrimental effects on mothers' wages, leading to an eight per cent reduction two years after childbirth (Bia et al., 2021). Their findings indicate a continuous negative effect, especially for higher-earning mothers, and suggest that encouraging fathers to take parental leave might help to protect mothers from the persisting detrimental effects of taking parental leave (Bia et al., 2021).

In 2019, the Luxembourg Government's Ministry of Family Affairs, Integration and the Greater Region released the latest records on parental leave take-up. As exhibited in **Figure 8**, parental leave take-up, especially among fathers, is following a slow but steadily increasing trend, with a shift observed after the introduction of the 2016 parental leave reform. An evaluation of the status of fathers' parental leave take-up after the reform, which the Ministry of Family Affairs published in 2020, found that the wealthiest fathers of children who were born during the first half of 2017 were almost 3 times more likely (12.9 per cent) to take parental leave than the wealthiest fathers of children who were born in the first half of 2015 (4.4. per cent), prior to the reform (Valentova et al., 2020). Their analyses also showed that the leave take-up increased from 10 per cent for fathers whose earnings were between 1.25 and 3 times the social minimum income and whose child was born in 2015 to 17.4 per cent for fathers of the same income group whose child was born in 2017 (Valentova et al., 2020). These analyses signal an upward shift in fathers' parental leave take-up following the implementation of the reform in 2016.

Figure 8 Number of parental leave takers in Luxembourg, absolute numbers, 1999 - 2018



Source: The Ministry of Family Affairs, Integration and the Greater Region, 2019.

The evidence provided above suggests that there is room for an exploration of the details of fathers’ parental leave take-up in Luxembourg. This is both necessary and interesting. As was mentioned above, Luxembourg’s parental leave, especially after the reform, represents the gold standard for an attractive parental leave policy design: it is (generously) paid; it is an individual right; it is non-transferable; and it offers flexibility in its use. Since the policy was first introduced, and thus even before the reform in 2016, fathers have become increasingly likely to take parental leave. The limited research on the analysis of parental leave and fathers in Luxembourg suggests that there is room to expand the evidence base. This thesis thoroughly examines first-time fathers’ parental leave trajectories in Luxembourg. Across the three independent studies of the parental leave policy in Luxembourg, a particular focus is on the role of workplaces.

Chapter 5: Access to leave

Understanding the eligibility for parental leave and its translation to take-up in Luxembourg³

Preface

This chapter focuses on the eligibility for parental leave in Luxembourg. The 2016 parental leave reform brought about a set of changes in the existing parental leave regime. One of the main components of this reform was the change in eligibility criteria. The reform reduced the number of hours parents needed to work to qualify for parental leave. Following this change, parents who worked between 10 and 20 hours became eligible for parental leave. The parents in this group are known as marginal part-time workers. Inspired by this change, this chapter addresses the following research question: Does enhanced eligibility translate into more take-up? In other words, this chapter examines whether the parents who became eligible for parental leave after the 2016 reform started taking the leave. The analytical sample consists of 6,254 first-time parents whose children were born between December 2009 and June 2017. Of this sample, around 5 per cent of mothers (N = 331) and 3 per cent of fathers (N = 223) are marginal part-time workers who were working 10 hours per week before their child was born. This chapter provides two complementary analyses. The first analysis looks at the predictors of eligibility and compares different groups of parents, separately for fathers and mothers, based on their probability of being eligible for parental leave. The aim of this first step is to assess whether there are any discrepancies depending on certain characteristics of parents, such as nationality,

³ An earlier version of this chapter was published in *Social Inclusion* in 2021. Citation is as follows: UZUNALIOGLU, M., VALENTOVA, M., O'BRIEN, M. & GENEVOIS, A. S. 2021. When Does Expanded Eligibility Translate into Increased Take-Up? An Examination of Parental Leave Policy in Luxembourg. *Social Inclusion* 9, 350-363.

employment sector, or number of working hours. Furthermore, the second analysis looks at the probability of taking leave among mothers and fathers in marginal part-time employment. Thus, this analysis estimates the extent to which newly eligible parents started taking parental leave.

5.1. Introduction

Parental leave take-up is a property of the parental leave eligible population. One of the key changes that Luxembourg's 2016 parental leave reform brought about was the change in one of the eligibility criteria. With this modification, parents who work between 10 and 20 hours, known as marginal part-time workers, meeting other requirements such as continuous social security contributions, have been granted access to parental leave. In other words, the population, who potentially could use the parental leave, would grow by the size of this new group of parents. Such expansion is relevant for the leave take-up calculations as there might be changes in the before and after-reform samples. This urges the need to ensure that the leave take-up analyses are not affected by this change or if there found a significant alteration in the post-reform sample, then it is taken care of. Therefore, in this chapter, I delve into the altered eligibility criteria of the 2016 parental leave reform and test if this change has been translated into take-up by the parents, who became eligible for parental leave for the first time. Although throughout the thesis, my key interest is on the first-time fathers' parental leave take-up behaviours, in this chapter, I also look at the changes in mothers' access to leave to have a better contextual understanding.

Eligibility criteria define the potential beneficiaries to a certain entitlement or benefit. Depending on its specificities regarding the conditions to meet they determine the ways in which a target population could access the benefit. Restricting access to welfare benefits by using eligibility criteria is not uncommon (van Oorschot, 1991). However, this area is not widely explored

within work-life reconciliation scholarship and particularly in research on parental leave policies. The developments in this have been somewhat recent and has started growing with the efforts of scholars such as Dobrotić and Blum (2020); EIGE (2020); Twamley and Schober (2019). The first two of the mentioned studies are cross-country comparisons explaining eligibility for parental leave at an aggregate level. Differently from these, Twamley and Schober's 2019 study focuses on the UK's shared parental leave policy with an in-depth survey that they administrated with 575 expectant mothers. Their findings highlight on the importance of the awareness of eligibility criteria and shows that it is one of the reasons behind the low take-up and there is a variation in access in detriment of lower-educated parents.

In this chapter, I take a different approach and discuss whether the expansion in eligibility has been translated into take-up. A key strength and novelty that this chapter brings about is the focus on one country and exploiting administrative social security records rather than surveys or aggregate-level data sources. The utilization of social security records and working in one country prevents the effect of macro-level institutional variations across countries. The eligibility criteria define the size of the eligible population, which is the denominator of the take-up calculations. This varies across countries, hence, the focus on a single country account for the unity of external shocks. Furthermore, when the change in eligibility criteria addresses a specific group of parents, their behaviours affect overall take-up rates in the country. The expansion in parental leave eligible population would increase the denominator for the take-up calculations, yet if newly eligible parents do not take parental leave, then overall parental leave take-up rates for that country will drop. Therefore, for an outside observer, it may not be entirely clear whether this decrease is due to a general population behaviour, or it is due to the newly eligible parents' parental leave take-up behaviour. In other words, the leave take-up rates may not necessarily increase in the same pace

as the increase in the eligible population. The 2016 parental leave reform in Luxembourg provides a unique opportunity to examine this phenomenon.

Once eligible for leave, parents gain the option to decide whether to take the leave or not. Hence, it is in their power to exploit this benefit and turn into an advantage or simply abandon it. This advantage can be conceived as the capability to perform employee and parenting roles reciprocally (Javornik & Yerkes, 2020). The parental leave policy then comes in the form of a leverage where working parents could navigate between potentially competing expectations from the workplace and the family. During the course of the leave, parents could undertake their family responsibilities with uninterrupted time and protected income. In return, workplaces could secure talent and avoid productivity losses. The income and job protection that the parental leave secures resonates with provision of equal opportunities for children across households with varying financial capacities. Having two parental leave eligible parents within the household then potentially would translate into an equal opportunity for young children to experience the benefits of living in a parental-leave-rich households, which include direct parental care, better relationship between parents, and increased paternal engagement (O'Brien, 2009; Petts & Knoester, 2018, 2019).

The nature of parental leave policies is different from other work–life reconciliation policies concerning childcare. The primary target of parental leave policies are parents, often only working parents and sometimes it is only salaried employee parents. This leave enables parents to reconcile work and family responsibilities and ensuring gender equality between co-parents. Although children's well-being is a driving motivation of this policy, it is being targeted indirectly via parents' employment status. Parental leave policies do not discriminate between mothers and fathers (unless one's eligibility is dependent on the others') when evaluating their eligibility for the

leave. The gender-neutral approach aims and operates as a care and a gender equality measure (Kosłowski et al., 2020). However, because parental leave is designed as an employment right, especially in the case of Luxembourg, the nature of labour force composition in each country shapes the extent to which the access to leave is gender equal. Gender disparities in the labour force are likely to be mirrored in inequalities in access to parental leave (O'Brien et al., 2017). Conceptually, eligibility for parental leave and the use of that leave are different.

While eligibility is defined and imposed by an external force, the decision to take up this benefit appears to be a result of a more complex, multidimensional process. Moreover, being eligible for the leave, or simply holding the right to use the parental leave, does not guarantee the use of it. Hence, there is likely to be a smaller number of parents as leave takers among the eligible ones. Consequently, it emerges as necessary to understand to the extent of which the newly eligible parents' respond to their newly gained parental leave entitlement. With the enlargement in total eligible population, their behaviour would increase or decrease the overall take-up rates in the country. Whether the policy change can establish or transform behaviour remains an interesting question.

To this end, the goal in this first study of the thesis is to assess the extent to which the expansion in eligibility criteria in Luxembourg's parental leave reform could turn newly eligible (those who work between 10 and 20 hours per week and are classified as marginal part-time workers) first-time parents into leave-takers. I am using social security records to quantify this transition; hence the analysis precisely captures the target population. The objective is to examine the evolution of eligibility and take-up over time, particularly for newly eligible parents and across different parent groups. I first provide a descriptive picture of annual parental leave eligibility and take-up rates, and

then discuss the main determinants of eligibility among first-time parents in Luxembourg. I present the characteristics of parents who are excluded from parental leave due to eligibility criteria and explore the factors affecting the probability of being eligible across full-time, part-time, and marginal part-time (working between 10 and 20 hours a week) working parents. I then focus on marginal part-time working parents—who only became eligible for the leave after the reform—and examine the interplay between eligibility changes and take-up behaviour among mothers and fathers. Before the analysis, I discuss parental leave eligibility and determinants of take-up based on existing evidence and summarise Luxembourg's leave system. I finish with the discussion and conclusion sections.

5.2. Conceptualising eligibility for parental leave

The analysis of eligibility and take-up are often approached as two separate concepts. The analysis of leave take-up corresponds to the analysis of the leave take-up behaviours of the eligible population. Hence, by definition the non-eligible population is different from the eligible population. However, to understand the extent to which the policy performs and where it works and where it fails, an examination of who is left behind becomes necessary. Indeed, when there is a change in eligibility criteria, like in the 2016 parental leave reform of Luxembourg, it becomes possible to see whether newly eligible parents take the opportunity.

Conceptually, eligibility for parental leave could be described as an advantage that the parents hold. From a capabilities approach perspective, advantages correspond to individual's capability to function (Sen, 1987). Individuals' advantages "*freedom to choose between alternative functioning bundles*" lead to *achieved well-being* and *freedom to achieve well-being* (Sen, 1987, p. 18) [emphasis added]. Achieved well-being represents a normative term, which makes a generalisation challenging due to diversity in personal preferences

and people's *value judgements* [emphasis added]. The heterogeneity of preferences, the workplace characteristics, social norms and the scope of statutory rights together constitute an individual's capability set or, in other words, *actual functionings* (Sen, 1987) [emphasis added]. In this case, parents' access to parental leave, i.e., being eligible for parental leave, means that parents have capability to take the leave. Parents' having the opportunity to take or not take parental leave corresponds to their advantages. The achieved well-being, in this case, relates to achievement of working parenthood status where a parent is able to take leave while keeping their job secure.

Sen argues that human behaviour is formed within the limits of one's capabilities as well as institutional boundaries (Sen, 1992a). The offerings of the institutions and the way they formulate the rights and services influence individuals' opportunities as well as prospects (Hobson, 2018). Establishing a balanced work and family life is related to having the capabilities to translate the means to valued functionings. The possession of resources, in Korpi's terms, is associated with one's agency, which can be experienced in the form of basic or elite agency (Korpi, 2000). For example, according to Korpi, access to primary education is a basic agency, and access to tertiary education is an elite level agency, which comes with ownership of financial and material power as well as access to services. In this case, being eligible for parental leave is equivalent to basic agency whereas being actual beneficiary of the leave means elite agency. This conceptualisation suggests that when both parents are eligible for parental leave it corresponds to their basic agency. However, it is only the use of leave will enhance their status from basic to elite agency.

Capabilities approach deals with individuals' aspirations, freedoms and opportunities, access to a right (Nussbaum, 2003; Robeyns, 2005; Sen, 1985b). In this case, eligibility for parental leave becomes a central issue in

understanding how individuals make use of their rights, i.e. take-up of the leave (Yerkes et al., 2019). With substantial eligibility barriers in place, one would expect that there will be discrepancies derived from access to employment and the type of jobs that they undertake. Hence, those who are with more secure and stable jobs will be more prone to be eligible for parental leave whereas those who are in precarious jobs with temporary contracts will lack the opportunity, i.e., the advantages (Campbell, 2006; Ghysels & Van Lancker, 2011). Eligibility requirements for parental leave is associated with growing inequalities among parents' parental leave practices (O'Brien et al., 2017; Twamley & Schober, 2019). The disparities in access based on employment conditions require attention to be paid to countries' labour force composition, the type of jobs available in the market, and any activation measures. When eligibility criteria are linked to traditional employment modalities, they become more prone to exclude parents working under non-standard contracts (Margolis et al., 2019; O'Brien, 2009; Patnaik, 2019). This may generate accessibility clusters and could turn parental leave into the property of only specific groups of parents, thereby excluding those in insecure or atypical employment (Dobrotić & Blum, 2020; Ghysels & Van Lancker, 2011).

Access to leave and having the preference of using or not using it are different from the value the parents attach to it. A parental leave eligible parent's non-take-up might be associated with the value that they attach to the leave, in addition to other reasons such as financial constraints. Contrarily, this assumption does not apply for parental leave ineligible parents as they do not have the entitlement to make a decision about the use of it.

With a few exceptions, access to parental leave across the EU member states is bound by eligibility criteria. Similar to the variations in the design of parental leave policies, the eligibility criteria vary across member states (Koslowski et al., 2020). In fact, access to leave itself and access to the leave

benefits could not always be mutually exclusive either. In the majority of the European member states, parental leave is designed as an employment right. Hence, access to parental leave is mediated through having secured a salaried job and uninterrupted social security contributions (Dobrotić & Blum, 2020; EIGE, 2020; Koslowski et al., 2020). Employment history, type of contract, number of working hours and the type of job are some other factors that shape the eligibility rules for parental leave. Alternatively, in a few countries, mostly in the Scandinavian region, parental leave is designed as a citizenship right and access is guaranteed after having lived in the country for a certain period of time (Koslowski et al., 2020). With all the eligibility rules in place, across the EU member states 29 per cent of women and 20 per cent of men are ineligible for parental leave due to unemployment or inactivity, employment conditions, self-employment, or personal and household characteristics (EIGE, 2020).

5.3. Luxembourg context

Because the Luxembourg country context and parental leave policy has been covered extensively in previous chapter, this section only provides with a summary regarding the labour force composition and eligibility criteria for parental leave in order to avoid repetition.

Luxembourg is a unique country with nearly half of the population being foreign nationals and half of the labour force being composed of cross-border workers (Le Gouvernement du Grand-Duché de Luxembourg [the government of the Grand Duchy of Luxembourg], 2020) (STATEC, 2020). Of the ages between 25 and 54, around 2 per cent of men work part-time compared with 30 per cent of women (Eurostat, 2020a). Working in marginal part-time hours (working less than 20 hours per week) seems more prevalent among women than it is for men. The group of men who works marginal part-time hours correspond to less than 1 per cent of Luxembourg's labour force.

Albeit not at a great quantity, marginal part-time working women constitute 6.1 per cent of Luxembourg's labour force (OECD, 2020). Because the 2016 parental leave reform's alterations in eligibility criteria are of specific concern of this very group of working parents, I wanted to highlight the situation to provide a contextual background. The gender division of parents who work in marginal part-time hours show that this change in the reform is more relevant for mothers than it is for fathers.

The initial parental leave is formulated as a paid entitlement contingent on continuous social security contributions and employment with the same employer during the 12 months before the start of the leave. In addition to these, parents must have been working for minimum 20 hours per week during the same period. Hence, there is a strong link between holding a secure and conventional job with regular working hours. With these eligibility specifications in place, Luxembourg's parental leave policy can be categorized as a selective adult-worker model (Dobrotić & Blum, 2020) and described as an employment-related social investment mobilised by the state.

Continuing to be an entitlement based on eligibility criteria, the 2016 reform brought about some flexibilities and proposed an expansion in access to leave. With the reform, parents who work in marginal part-time employment, meaning between 10 and 20 hours per week, became eligible for parental leave for the first time. As long as they have at least one year of uninterrupted social security contribution prior to the start of the leave, these parents could now take parental leave. This mean, the parental leave eligible population have grown by the size of this group of parents in marginal part-time hours.

Within the scope of this chapter, the focus is solely on the eligibility element of the reform. The analysis of eligibility appeared as necessary before moving on to the analysis of the impact of the reform. Thus, I first wanted to ensure that the pre- and post-reform groups' parental leave take-up is comparable,

meaning that they are not affected by the change in the definition of eligible population. The details of the parental leave policy and the reform in Luxembourg has been covered in the previous chapter and are also captured in the following chapters with further analysis provided. Therefore, it is important to keep in mind that the analysis presented in the next sections do not aim to claim any causal links between the reform and the parental leave take-up of the parents. The starting point is to understand the composition of the newly eligible population and see whether they have actually started taking the leave once becoming eligible for it. Because the newly eligible parents (marginal part-time working parents) did not have access to the leave before the reform, their leave take-up behaviours could be translated as the impact of the reform – irrespective of claiming which element of the reform acted as the greatest motivation.

5.4. Data and Sample

To deploy an analysis of the rates of parental leave eligible parents over the years and to measure the leave take-up of the marginal part-time working parents once becoming eligible after the 2016 reform I benefit from social security records, as outlined in the previous chapter. The data set includes information on nationality, age, employment records, parental leave eligibility and take-up. It is provided at individual level where each parent is linked to one another. Hence, I have information of the partners for each parent in the sample. The dataset is limited to parents who has only one child, who were born between December 2009 and June 2017. This gives me a sample of 6,254 mothers and fathers. Of this sample, 5.29 per cent of mothers (N = 331) and 3.57 per cent of fathers (N = 223) are recorded as marginal part-time workers at the time prior to childbirth. Hence, my specific interest group is only a small fraction of the entire population that we have at our disposal for the analysis.

The reason why I limited the sample to parents with one child is practical. The dataset does not allow to link which parental leave is taken for which child, hence for the reasons of clarity I decided to work with parents, who are jointly cohabiting in Luxembourg, who happened to be parents for the first time. Since Luxembourg has a fertility rate of 1.34 (The World Bank, 2020), thus my selection remains relevant for the case of Luxembourg.

I also excluded parents who are residing outside of Luxembourg. As mentioned in the previous section, Luxembourg has a peculiar labour force composition where nearly half of it (46 per cent) are cross-border workers (Le Gouvernement du Grand-Duché de Luxembourg [the government of the Grand Duchy of Luxembourg], 2020). Cross-border workers are eligible for parental leave in Luxembourg because of their contribution to the Luxembourgish social security system. However, because I do not have full information about their partners' employment situation and workplace characteristics, unless they are also employed in Luxembourg, I decided to limit my scope to Luxembourg-resident different sex parent couples only.

The analysis is excluded of self-employed parents too. This is due to the calculation of number of working hours in the data. Parental leave entitlement is calculated according to the number of working hours reported by employers, and self-employed parents self-reported hours are not captured in this weekly number of hours variable in the IGSS dataset. It being an essential variable for parental leave analyses, I did not keep these parents in our analyses.

In the end, the analyses consist of Luxembourg-resident, cohabiting, heterosexual co-parents with one child who were born between December 2009 and June 2017. This also means, for the post-reform period, I have parents whose children were born between December 2016 and June 2017. The full observation window in our dataset ends in December 2018, which

gives us a total 24-month period to capture the post-reform leave take-up behaviours. However, due to the small sample size, I decided to pool all these post-reform parents together and have an 18-month post-reform observation period as an outcome measure.

With the Table 4 below I present the key characteristics of the analytical sample. This descriptive picture already gives hints on the difference in access to parental leave between mothers and fathers in Luxembourg. Around 28 per cent of mothers and 14 per cent of fathers were recorded as not working during the 4–5 months before the birth of their child. These parents fail to meet eligibility criteria due to interruptions in their social security contribution. Further, the majority of these parents were from other EU-28 countries (not the neighbouring countries or Portugal) and non-European backgrounds. This is consistent with Luxembourg’s overall population statistics indicating that the unemployment rate is higher among foreign nationals than among native Luxembourgers. The overall unemployment rate in Luxembourg was 5.4 per cent (World Bank, 2020) in 2019 whereas the foreign-born unemployment rate was 6.7 per cent (OECD, 2020).

Among the mothers who are not working 34 per cent of them are non-European, 25 per cent are from other EU-28, and 14 per cent are Portuguese, who constitute the largest foreign nationals in Luxembourg. Not-working fathers are of similar characteristics too. 25 per cent are non-European, 30 per cent are from other EU-28 countries, and 13 per cent are Portuguese. These numbers show that about one third of mothers and one fourth of fathers are omitted in our parental leave calculations simply because they are not eligible for parental leave and unless they are in employment with minimum 10 hours of work per week, they cannot be included in the analyses.

The analysis sample is a true reflection of Luxembourg’s population statistics. Among the non-native population in the sample, the majority is Portuguese

(20 per cent), followed by other EU-28 and non-Europeans (14 per cent). Full-time work is common among parents. In the sample, about 60 per cent of mothers and 78 per cent of fathers work full-time. The majority are employed in the private sector. However, a considerable proportion of them (30 per cent of mothers and 14 per cent of fathers) did not report sector information, because they were not working at the time of data collection.

Table 4 Descriptive statistics.

	Mother		Father	
	Mean	SD	Mean	SD
Age	30.5	5.30	32.8	6.00
Nationality				
Native	.377	.484	.388	.487
Luxembourger				
Neighbouring countries (BE-DE-FR)	.130	.337	.146	.353
Portuguese	.200	.400	.218	.413
Other EU-28 or non-European	.291	.454	.246	.430
Number of working hours				
Not working	.2812	.449	.147	.354
Marginal part-time	.0529	.223	.035	.185
Part-time	.069	.254	.041	.199
Full-time	.596	.490	.775	.417
Employment sector at the time of childbirth				
Not working/No sector info	.302	.459	.141	.348
Private	.614	.486	.739	.438
Public	.083	.276	.119	.324
N	6,254		6,254	

Source: IGSS 2020.

Because marginal part-time working parents are the group who gained access to parental leave with the 2016 reform, and the focus of this chapter, Table 5 exhibits the key characteristics of these parents. These descriptive statistics show that this group of parents are of different characteristics and more homogenous compared to the overall sample. They are younger, mostly employed in the private sector, and they come from non-Luxembourg backgrounds. Most of this group (both for mothers and fathers) are either from Portugal, other EU-28, or non-European countries.

Table 5 Descriptive statistics for marginal part-time working parents.

	Mother		Father	
	Mean	SD	Mean	SD
Age	29.6	5.608	30.8	6.51
Nationality				
Native Luxembourg	.187	.390	.183	.388
Neighbouring countries (BE-DE-FR)	.078	.269	.103	.304
Portuguese	.477	.500	.372	.484
Other EU-28 or non- European	.256	.437	.348	.475
Employment sector at the time of childbirth				
Not working	.16	.367	.094	.292
Private	.839	.367	.906	.292
Public
N	331		223	

Source: IGSS 2020.

5.5. Results

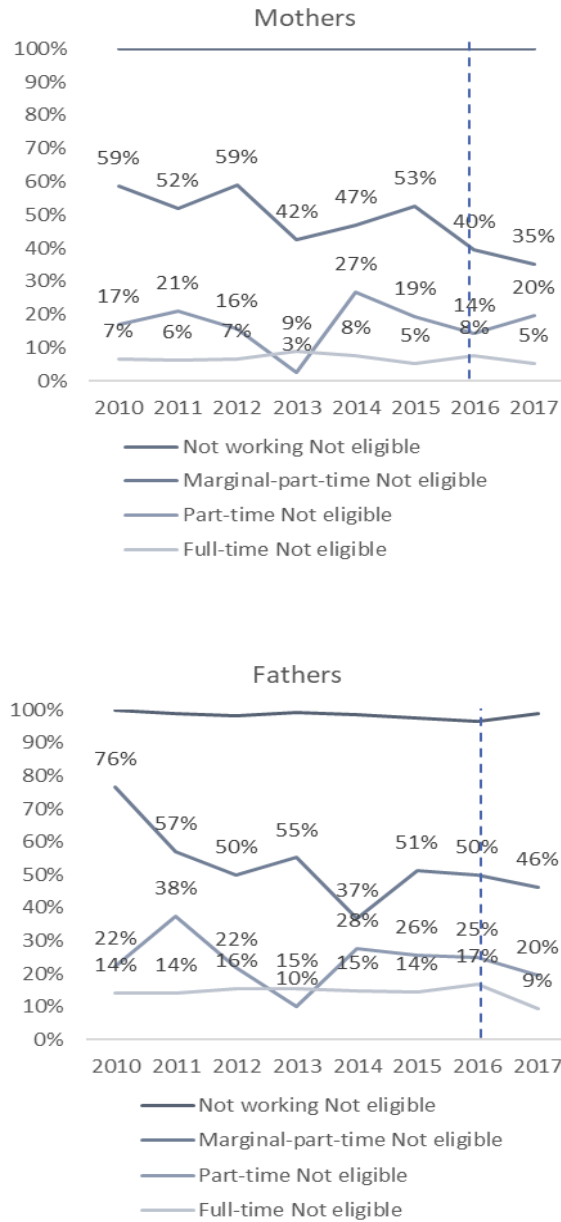
5.5.1. Eligibility for Parental Leave in Luxembourg

I start the analysis by calculating the eligibility rates first. The aim is to display the size of parental leave eligible population during the observation window at my disposal, which is the period from 2010 to 2017. To do so, I followed the methodology proposed by Nelson and Nieuwenhuis (2019), and divided the number of parental leave eligible parents by the total reference population, those are all first-time parents whose children were during the pre-defined observation period irrespective of their eligibility status. I repeated this calculation for each year for fathers and mothers separately.

I present the eligibility rates in clusters of the parents' working hours. This has two underlying motivations. First, one of the key determinants of eligibility for parental leave is number of working hours. Second, the 2016 parental leave reform granted marginal part-time working parents' eligibility for the first time; hence it is of this chapter's specific focus to capture their eligibility status in the post-reform period.

This variable is derived from the average number of hours worked per week 4–5 months before childbirth. The eligibility variable shows if the parent became eligible at any point during the observation period. While the small number of marginal part-time working parents may be concerning, it is important to note that this is based on social security records for the population of interest. Therefore, I am presenting the actual population falling into this category. Hence, the small sample size is not an issue since it is representing the reality rather than a representative sample of that group.

Figure 9 Trends in eligibility for parental leave in Luxembourg, 2009–2018.



Source: IGSS. 2020.

Not working mothers=1712, MPT mothers=324, PT mothers=422, FT mothers= 3611. Not working fathers=897, MPT fathers=217, PT fathers=258, FT fathers=4701

The graphs above in **Figure 9** show the change in eligibility rates by weekly number of working hours for mothers and fathers separately over the course of nearly a decade in Luxembourg. As expected, the greatest shift is occurred among marginal part-time working parents in the period following the enactment of the 2016 reform.

In further advancement of the exploration of the links between eligibility (access to the leave) and take-up (use of the leave) I employed probit regressions. This was a two-step analysis complementing each other. First, I examined at the probability of being eligible for parental leave by number of working hours clusters for mothers and fathers separately. Then, in the second part, I estimated the probability of parental leave take-up only for the marginal part-time working parents. This was to see whether in the post-reform period, after meeting the eligibility criteria, marginal part-time working parents had started taking the leave.

For the first analysis, where I examine the determinants of being eligible for parental leave, I use the eligibility for parental leave during the 18 months after childbirth as my outcome variable. To put more clearly, I am estimating the probability of parents' eligibility for parental leave during the 1.5 years after childbirth. To explain what determines this probability of their eligibility I use age, nationality, employment sector at the time of the birth, and the same variables for the partner. Because I grouped the parents according to their weekly working hours, I did not include this information among the independent variables.

The Table 6 and Table 7 show the probit regression results for the determinants of eligibility for parental leave by parent groups of different weekly working hours clusters. The results indicate that access to parental leave is more an individual matter than a couple's or household issue. A partner's eligibility status, or higher probabilities of being eligible for parental

leave does not increase or lower the chances of the other parents' eligibility for the leave except for the full-time working mothers who are coupled with men from neighbouring countries and with those who are not working. A similar pattern is observed for the part-time mothers who are partnered with not-working men. The role of partners' nationality disappeared for fathers. For them, it was only full-time working fathers' probability of being eligible for parental leave which was reduced if they are partnered with not-working mothers.

It appears that mothers who from non-native Luxembourgish backgrounds have lower probabilities of being eligible for parental leave – especially among full-time and marginal part-time working mothers. This pattern is repeated for full-time working fathers but fades away for marginal part-time working fathers. The lower chances of eligibility among non-native Luxembourgish, particularly marginal part-time working mothers who are coming from other EU countries or outside of the EU region triggers questioning these mothers' access to the Luxembourgish labour market in the first place.

An important finding of these analyses is the positive association between an increase in weekly number of working hours and probability of being eligible for parental leave, which is consistent with the eligibility rules. Every incremental upward change in marginal part-time working mothers log of monthly working hours increases their probability for being eligible for parental leave by 18-percentage points. The same situation is observed among marginal part-time working fathers with a 20-percentage point increase.

Table 6 Parental leave eligibility for mothers according to number of working hours. Average marginal effects.

	Full-time working mothers		Part-time working mothers		Marginal part-time working mothers	
	Coeff.	z	Coeff.	z	Coeff.	z
Age	.002*	2.57	.003	0.81	.016*	2.63
Nationality (base category: native Luxembourger)						
Neighbouring countries (BE-DE-FR)	-.030*	-2.46	.003	0.05	-.063	-0.54
Portuguese	-.050*	-3.27	.050	-0.84	-.047	-0.50
Other EU-28 or non-European	-.067**	-4.49	-.101	-1.60	-.224*	-2.57
Log of monthly hours of work	.0144	0.23	.116	1.19	.182**	4.74
Sector						
Public	0.17	1.29				
Partner's age	.001	1.68	.006	1.49	.000	0.15
Partner's nationality (base category: native Luxembourger)						
Neighbouring countries (BE-DE-FR)	-.036*	-2.39	.017	0.24	-.100	-.092

Portuguese							
Other EU-28	or	non-					
European							
Partner's sector							
Public							
Not working							
Reform							
N							

Source: IGSS 2020.

Table 7 Parental leave eligibility for fathers according to the number of working hours. Average marginal effects

	Full-time working fathers		Part-time working fathers		Marginal part-time working fathers	
	Coeff.	z	Coeff.	z	Coeff.	z
Fathers' age	.003*	3.05	.010	1.57	.006	0.91
Nationality						
Neighbouring countries (BE-DE-FR)	-.083**	-4.30	-.024	-0.23	.087	0.64
Portuguese	-.051*	-2.92	.105	1.17	.083	0.69
Other EU-28 or non-European	-.122**	-6.58	-.002	-0.03	-.004	-0.05
Log of monthly working hours	.232*	2.62	.228	1.49	.207**	4.17
Sector						
Public	.044*	2.83				
Partner's age	.005**	3.84	.004	0.72	.007	0.92
Partner's nationality						
Neighbouring countries (BE-DE-FR)	-.027	-1.35	-.024	-0.24	.047	0.36
Portuguese	.018	1.04	-.037	-0.38	-.092	-0.72
Other EU-28 or non-European	-.008	-0.49	-.025	0.29	-.022	-0.21
Partner's sector						

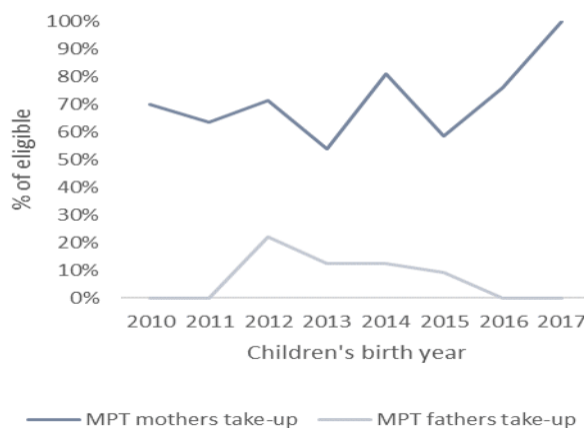
Public	-.011	-0.56	-.062	-0.47	.182	0.83
Not working	-.044*	-3.41	-.008	-0.15	-.002	-0.04
Reform	.046**	3.71	.034	0.51	.089	0.99
N	4823		259		223	

Source: IGSS 2020.

5.5.2. Take-Up of Parental Leave in Luxembourg: The Case of Marginal part-time Working Parents

In the second part of the analysis, I narrow down my focus to marginal part-time working parents. This part constitutes the goal of testing whether this newly eligible group of parents have started taking their leaves after becoming eligible for parental leave. Conceptually, this means that these group of parents are now holding a greater opportunity set when compared to their pre-reform situations. The change in eligibility status gives them an advantage where they can perform their parenting and work duties reciprocally. Although one could argue that these parents were already at a better off position in comparison to parents working longer hours, because they had more time available to devote childcare. However, parental leave gives these parents the security to retain their employment and irrespective of the intensity of their contribution in the labour market, their retention in the market contributes to their career progress.

Figure 10 Leave take-up by marginal part-time working Luxembourg-resident first-time parents



In parallel to the previous analysis, I employed a probit analysis with the observation period being 18 months after childbirth and set my outcome variable as the probability of parental leave take-up during this period.

The analysis of take-up requires redefining the analytical sample. Because only those who are eligible could decide whether to take the leave or not, for this part of the analysis I focused only on parental leave eligible marginal part-time working parents. That is exactly the group who became eligible after the reform. I estimated the probability of their leave take-up under the new parental leave regime.

Figure 10 above shows that marginal part-time working mothers and fathers respond differently to their new parental leave entitlement. Mothers seem to be more prone to utilize their new right whereas it is not necessarily case for the fathers in the same working hours category.

Like in the analysis of the determinants of eligibility for parental leave, in the probit regressions for the determinants of take-up of the leave, I looked at mothers and fathers separately. However, the sample size for marginal part-time working fathers were so small, that it did not allow me to run the analysis. Therefore, I only present the results for the marginal part-time working mothers. This, in other words, indicate that there was no significant change in marginal part-time working fathers' parental leave take-up patterns albeit now having access to the leave. Of the 56 marginal part-time working fathers who were eligible to take parental leave, only six did so. This confirms the evidence from literature indicating a low rate of leave uptake by disadvantaged fathers and those not engaged in full-time stable employment (Esther Geisler & Michaela Kreyenfeld, 2018).

Table 8 exhibits the average marginal effects based on the probit regression that I run in estimating the probability of marginal part-time mothers' parental leave take-up in the post-reform period. As before, I used the same set of explanatory variables capturing the individual characteristics of this group of mothers as well as their partners. The results are consistent with the first analysis on the determinants of eligibility. There is a similarity in the profiles of who barely met the eligibility criteria (becoming eligible for the first time) and those who do not meet the criteria. This is particularly prominent among marginal part-time working mothers coming from Portuguese or other EU and non-European backgrounds.

A stronger attachment to the labour market increases the probability of their leave take-up. This suggests that the greater attachment in paid labour is likely to motivate this group of mothers to keep their jobs and enjoy their newly gained parental leave entitlement at the same time.

It seems that the reform created some 26-percentage point increase in the probability of leave take-up of marginal part-time working mothers. This signals that the reform has succeeded to bring about a positive change, albeit only for a small fraction of the parents who had only one child born between December 2009 and June 2017.

Table 8 Determinants of marginal part-time working mothers' leave take-up in the post-reform period. Average marginal effects.

Leave take-up	Marginal part-time working mothers	
	Coeff.	z
Age	.017*	3.14
Nationality		
Neighbouring countries (BE-DE-FR)	-.098	-0.89
Portuguese	-.175*	-1.85
Other EU-28 or non-European	-.272*	-3.34
Log of monthly hours of work	.238**	6.01
Sector		
Public		
Partner's age	-.004	-0.88
Partner's nationality		
Neighbouring countries (BE-DE-FR)	-.108	-1.20
Portuguese	-.031	-0.41
Other EU-28 or non-European	-.089	-1.10
Partner's sector		
Public	.199	1.48
Not working	-.112	-1.56
Reform	.266**	3.77
N	331	

Source: IGSS 2020.

5.6. Discussion and conclusion

This chapter stands as the departure point in my quest to explore first-time fathers' parental leave trajectories and 2016 parental leave reform in Luxembourg. I started with examining the access to the leave and asked whether the relaxing of eligibility criteria resonated with the target group and whether these newly eligible parents have started taking the leave in the post-reform period. One motivation was to get to know the profiles of the eligible population, who later will be the focus of the following chapters due to my interest in analysing the take-up of the leave, and only those who are eligible can take the leave. Additionally, because throughout the thesis my focus is on first-time fathers' leave behaviours, I wanted to see whether there is a significant alteration in the group of eligible fathers in the post-reform period.

I interpreted eligibility as the gateway to take-up. Meeting the eligibility criteria enables parents to make a decision. With the new entitlement they gain access to a new opportunity set and their advantages expand. However, the leave take-up decision is more complex and multidimensional than a straightforward move. Indeed, there is almost no examples of complete leave take-up in other countries. In other words, there is no example from a country where all those who are eligible for parental leave are using their leave. Yet, the leave take-up indicates that some of the parents have embraced their given entitlement and chosen to benefit from it. For the marginal part-time working parents the same mechanisms apply. While expecting differences in leave take-up behaviours, there will also be parents in this group opting for their new entitlement. In one way or other, leave take-up among the first-time eligible parents could be considered as their ownership of this new entitlement.

From this starting point, I first reported the eligibility rates among first-time mothers and fathers who had their only child born between December 2009

and June 2017. When looking at the determinants of the eligibility for parental leave, I employed the probit regressions separately for mothers and fathers according to their working hours. These analyses revealed two key pieces of information. One, the eligibility for parental leave is greatly driven by individual factors. Second, there seems to be a difficulty in non-native Luxembourgish parents, especially if they are of non-European backgrounds, to meet the eligibility criteria for parental leave.

Because parental leave is an employment-related benefit, and each parent is evaluated individually it is reasonable to conclude that the individual characteristics of parents play a role in increasing or decreasing their probability for being eligible. This trend tends to break down when parents are coupled with non-European partners. The associations between the lower probabilities of being eligible for parental leave and coming from a non-European background gives some hints for the need of further investigations. Whether this is because non-European parents face difficulties in entering labour market or securing continuous social security contribution, or this is a choice of their own or they are failing to meet the market conditions remains unanswered and beyond the scope of this chapter.

I then examined the probabilities of leave take-up for marginal part-time working parents. Because they were not eligible for parental leave before the reform was enacted, any change from no take-up to take-up could be attributed to the reform. The analysis of the leave take-up for the other parents, who were already eligible for parental leave, and the impact of the reform is studied in the following chapters. Therefore, to see the extent to which the eligibility is transformed into take-up in this chapter I kept my focus still with marginal part-time working parents.

The analysis of the determinants of probability for parental leave take-up immediately revealed that this feature of the reform was not of significant

concern for fathers. Because of the tiny number of first-time fathers working marginal part-time hours, I failed to deploy a probit regression for this group. This made me conclude that the expansion in eligibility was not relevant for first-time fathers in Luxembourg. On the contrary, the take-up was more pronounced among first-time mothers who work in marginal part-time employment. Despite no meaningful change being observed among first-time fathers, I still interpret marginal part-time working mothers' parental leave take-up as a positive development of the 2016 parental leave reform.

The expansion of parental leave eligible population in Luxembourg targets only a small fraction of the entire parent population. The marginal part-time working parents, in the period that we cover, constitute of 5 per cent of first-time mothers and 3 per cent of first-time fathers. This specificity already communicates that the change in the potential eligible population will not change the entire dynamic of the post-reform parental-leave-eligible composition of parents. This also means that only a sub-group of this newly eligible group of parents will be taking up the leave. Therefore, the change in parental leave take-up rates in the post reform period is not under significant threat of this expansion.

The analyses revealed that the relaxing of the eligibility rules was most meaningful for marginal part-time working mothers. This may have several explanations. One being majority of marginal part-time working parents are mothers. I did not go further in analysing the direction of the association, for example whether mothers themselves prefer to work on marginal part-time jobs or is it because they do not have any other option when they want to stay in employment while providing care for their young children. Irrespective of the motivations behind opting for marginal part-time employment, the difference in sample sizes indicate a gendered structure in this group of work.

Albeit the small sample size, marginal part-time working mothers' parental leave take-up shows that the policy reform achieved one of its goals by retaining these mothers in employment. One might argue that their attachment to labour market is already weaker when compared to other part-time working mothers or full-time working mothers. It could be assumed that parents who work for few weekly hours already have more "free time" for childcare or are less constrained by long hours of work. It could also be argued that leaving the labour market has fewer income penalties for marginal part-time working parents than for those working full-time hours. Given that their income would be lower than full-time workers and that most marginal part-time working mothers live with full-time working men, income loss in those households is likely to be lower than in others where mothers have stronger labour market attachment and higher salaried incomes. However, irrespective of the extent of the loss, the reform offers an opportunity to protect jobs and thus income. These parents' inclusion in the parental leave scheme conveys an explicit message that their labour is valued.

While acknowledging the eligibility expansion's positive influence for marginal part-time working mothers, the magnitude of parents who remain ineligible for parental leave is worth highlighting. The initial eligibility analyses showed that many parents failed to meet the conditions, therefore remaining ineligible. These people are primarily of immigrant backgrounds; the majority either from non-European countries, or other EU-28, specifically Portugal (which makes up most of the immigrant population in Luxembourg). I also found that of those who are among the working population, these parents (non-native Luxembourgers) had significantly lower probabilities of eligibility for parental leave than Luxembourg natives. Immigrant parents' inadequate access to parental leave is widely seen in other country contexts, see for example Ellingsæter et al. (2019); Tervola et al. (2017). However, with half of its population and labour force being of immigrant background,

non-native Luxembourgers' limited access to parental leave raises questions concerning the capacity of the policy to reach all parents in such a multinational society. It may indicate that parents with immigrant backgrounds are more likely to have a scarcity of resources or lack an established community (Yerkes et al., 2020) to enable them to be in the labour market and provide care for their children concurrently. The arguable inclusivity of the parental leave policy in Luxembourg resonates with Sainsbury's examination of the Swedish case, "expansion of services does not necessarily benefit vulnerable groups" (Sainsbury, 2018, p. 223).

Future observations over a longer time frame are needed to track and understand the intersection between immigrant parents' employment behaviour, parents in irregular employment, and the effects of extending parental leave eligibility to those parents, particularly fathers. Similar to other countries, see, for example Bygren and Duvander (2006); Sainsbury (2018), Luxembourg reproduced the long-standing cultural and structural legacy of higher parental leave-taking by mothers and lower levels by fathers. In fact, it is not entirely surprising to observe that only six of the 56 marginal part-time working fathers who were eligible for parental leave in 2018 took it. This pattern resonates with Heckman and Smith (2004), concluding that eligibility is a necessary but never a sufficient condition for parental leave take-up.

Chapter 6: Leave take-up

First-time fathers' parental leave take-up: Evaluating Luxembourg's 2016 parental leave reform

Preface

This chapter analyses the impact of the 2016 parental leave reform in Luxembourg on the leave take-up behaviour of first-time fathers. After the reform, the leave compensation level was increased, new flexible leave use modalities were introduced, and the total coverage period was enhanced for another year. This chapter starts with a simple research question: What impact did the 2016 parental leave reform in Luxembourg have on first-time fathers' parental leave take-up? The chapter also aims to answer the question of to what extent this impact varied across workplaces, income groups, and by co-parents' relative resources. There is an underlying question that this chapter seeks to answer: namely, whether a gender-neutral policy is sufficient to change traditionally gender normative practices, especially in workplaces.

For data availability reasons, the post-reform observation period is restricted to 18 months. In other words, this chapter estimates the propensity of fathers to take leave during the 18 months after the birth of their first child. This enforced restriction means that the findings presented in this chapter can be interpreted as an analysis of the impact of the increased leave compensation element of the reform. This is because the data do not allow us to follow the entire eligibility period, which would be six years after childbirth, and the flexible use of leave is more popular in the later periods than in the first 18 months after childbirth. Hence, the new modalities of parental leave and the expansion of the leave coverage period become irrelevant for the first 18 months after childbirth.

The analytical sample consists of fathers who had their first child between December 2014 and June 2015 (pre-reform group) and fathers who had their first child between December 2016 and June 2017. This chapter provides a causal estimate of the reform's impact by comparing two groups of fathers with identical characteristics, the only distinguishing element being the time of their child's birth. The first analysis employs propensity score matching and measures the average impact of the reform. These propensity score matching analyses are then repeated with heterogeneity analyses to measure the magnitude of the reform in different groups. The heterogeneity analyses reflect the multidimensional nature of parental leave and use the meso- and micro-level characteristics in comparisons.

A key goal of this chapter is to discuss the interplay between workplace characteristics and fathers' leave take-up. Accordingly, a set of work workplace characteristics, such as the workplace size, the feminisation level of the workforce, the young/old employee ratio, the employment sector, and the private and public sector division, were used. Additionally, given the relevance of the father's parental leave decision to the division of household responsibilities, the co-parents' relative resources are also discussed within the context of the impact of the reform. In other words, the impact of the reform is examined through the lenses of meso- and micro-level factors.

6.1. Introduction

The 2016 parental leave reform altered the course of parental leave in Luxembourg. The changes introduced in the reform addressed key areas that the literature that has long been suggesting are crucial for improving fathers' involvement in parental leave. These are increased compensation, more flexibility in how the leave can be used, and an expanded coverage period. This chapter looks at the impact of the reform on parental leave take-up among first-time fathers, and the extent to which the magnitude of the

changes in their leave take-up behaviour varies across workplaces and income groups, and by the co-parents' relative resources. Because Luxembourg's parental leave is an employment-related benefit, throughout this study, the primary emphasis is on the interplay between workplace characteristics and first-time fathers' parental leave take-up.

Parental leave decisions are complex, as they are influenced by multiple factors that intersect at different levels. Parental leave policies are macro-level policies (legislation) that are administrated at the meso level (workplaces), but individual parental leave decisions are initiated and experienced at the micro level (households). In this chapter, the impact of the 2016 parental reform is discussed in the context of the multidimensional nature of parental leave.

First, as was discussed in previous chapters, financial constraints are among the primary reasons why fathers' leave take-up rates are low. Since the 2016 parental leave reform altered the leave compensation structure and increased the remuneration for parents, it is interesting to examine how the effects of the changes varied across income groups. To this end, a set of analyses in this chapter looks at the heterogeneity of the impact of the reform across income quintiles. The effects of these changes likely also varied depending on the household's level of dependency on the father's income. The co-parents' contributions to the household income may be expected to influence the father's leave take-up behaviour. Accordingly, it is likely that the impact of the reform differed depending on whether a household was or was not highly dependent on the father's income and vice versa. To this end, another set of analyses in this chapter assesses the variation in the changes in fathers' leave take-up behaviour after the reform depending on the relative resources of the co-parents.

As has been extensively discussed, workplaces are vital in fulfilling the promise of parental leave policies. To explore the significant influence of

workplaces on parental leave take-up behaviour, a set of heterogeneity analyses are used in this chapter to measure the variation in the effects of the changes across workplaces. In other words, this chapter not only measures the average impact of the 2016 parental leave reform on first-time fathers' parental leave take-up behaviour, but also provides a more detailed analysis of the impact by looking at how it varied across different groups of fathers.

This chapter engages with the conceptual framework concerning gendered workplaces, the impact of the reform, and relative resources. Respecting the multidimensionality of parental leave decisions reported in the empirical analyses, this chapter provides new empirical evidence for the theoretical discussions, similar to those that Hojgaard (1997) and Sullivan (2016) had, on the ever-evolving nature of fatherhood and the reconstruction of gender and its dynamic relationship with work.

Although parental leave is an individual entitlement, the historical division of labour and men's stronger attachment to the labour market means that the workplace-leave nexus plays an even more prominent role in parental leave decisions (Haas & Hwang, 2007, 2016, 2019b; Holmes et al., 2020). This also suggests that in the absence of a supportive, enabling workplace environment, parental leave policies are likely to fail to fulfil their potential, even when the leave entitlements they provide are generous. In other words, regardless of the generosity of parental leave policies and individual aspirations, it is workplaces that determine the actual parental leave take-up behaviour.

Workplaces have the power to reproduce masculinities and traditional ideal worker norms (Allard et al., 2007; Brinton & Mun, 2016; Ekberg et al., 2013; Haas & Hwang, 2019a). This argument follows an observation made by Acker (1990) three decades ago: namely, that workplaces are seldom gender-neutral. No matter how progressive a parental leave policy is, it will go through the workplace filter. Thus, the traditionally male-dominated

workplace culture will continue to influence employees', and particularly male employees', parental leave take-up behaviour.

Luxembourg's parental leave policy underwent a major reform in 2016. In the years leading to this reform, the country had introduced a series of other reforms and changes to promote maternal employment and to encourage fathers to take on parenting responsibilities (see Chapter 4, Policy developments concerning work-life reconciliation and care for young children in Luxembourg for the details). Since parental leave in Luxembourg is an employment-related entitlement, workplaces are expected to play a crucial role in the implementation of the policy. Therefore, in this chapter, I have a significant opportunity to measure the impact of the reform based on workplace characteristics. This analysis will contribute to the discussions above on whether a gender-neutral policy design could change gendered workplace practices. Given that Luxembourg has traditionally been a conservative country with a robust male-breadwinning cultural heritage, it is particularly interesting to see the extent of the success of the reform.

The other point of interest in measuring the impact of the reform and understanding fathers' parental leave take-up behaviour is the cost of being on leave or leave compensation. Whether parents can afford to take leave has been repeatedly identified in the literature as a gamechanger in parental leave decisions. An extensive body of research has documented the significance of income and potential earning losses during parental leave in shaping fathers' leave take-up behaviour; see, for example, Koslowski et al. (2020); O'Brien et al. (2007b). The 2016 reform changed the calculation of the leave compensation, and increased it significantly compared to the previous level. This change in compensation is examined in this chapter from two angles. First, income quintiles are used to observe the variation in the impact of the change. Second, the impact of the change is also measured depending on the co-parents' relative resources. This analysis is related to the reconstruction of

gender in the social sphere (Risman, 2004), and again to Oriel Sullivan's writings on the change in gendered behaviours; see, for example, Sullivan (2016); Sullivan and Gershuny (2016). The expectation that the impact of the change varied between households depending on the relative financial resources of the co-parents has its roots in the relative resources literature. According to Blood and Wolfe (1960), who paved the way for this line of research half a century ago, there is an underlying power struggle in the co-parents' allocation of time and resources depending on their contributions to the household income. These assumptions were later strengthened by a large body of empirical research that documented that the partner with greater financial power also often has more say in decision-making in the household (Becker, 1965; Sullivan, 2013; Sullivan & Gershuny, 2016). However, the partners' preferred behaviours may go beyond their material resources, as their ideologies and actual doings are not isolated from their social contexts. Therefore, it is likely that the impact of the reform will vary across households in which the relative resources of the co-parents are different. In the additional heterogeneity analyses, these characteristics are used to better understand the impact of the reform.

Before moving forward with the policy details and analyses, it is important to point out that although the reform contained multiple changes that were implemented concurrently, for reasons of data availability, the analytical design of this chapter addresses only the change in compensation. Thus, the results of the analyses and the interpretations only relate to the increased leave compensation; in other words, to the increase in the share of parents for whom taking parental leave became affordable following the change.

This study constitutes the backbone of this thesis. It is the first-ever study on the impact of the 2016 parental leave reform on parental leave take-up among first-time fathers in Luxembourg. Benefiting from the availability of individual-level social security records and focusing on a recent policy reform

in one country, this study contributes to the knowledge base on country-specific parental policies, given that there are currently only a limited number of such analyses (Mun & Jung, 2018). As this study provides new causal evidence on an underexplored phenomenon from an understudied country, it also contributes to the expansion of the parental leave literature.

As the country context of Luxembourg has been covered in detail in Chapter 4, in order to avoid repetition, the focus below is exclusively on the impact of the reform. This section is followed by a discussion of the theoretical background in which the hypotheses are also presented. After a description of the data and the methodology, there is a discussion of the findings. The chapter closes with the conclusion. Some of the graphs and regression outputs are provided in appendices.

6.2. Luxembourg's parental leave reform

While keeping the essence of the parental leave policy design constant, the 2016 reform changed the benefits the policy offers for working parents in Luxembourg. It remains an employment-related benefit requiring a 12-month-long period of uninterrupted social security contributions prior to the start of the leave. The reform increased leave compensation. Under the new parental leave regime, leave compensation has shifted from a flat-rate payment at the social minimum income level to a calculation based on the parent's pre-leave salary and number of working hours (see **Table 3** in Chapter 2: Conceptual and Empirical Background). There is an upper and a lower ceiling to the amount of compensation paid by the state. The minimum amount is equivalent to the social minimum income level and is higher than the previous flat-rate payment. At the time of the writing of this thesis, the minimum amount of leave compensation for a parent who works full time and who wishes to be on full-time leave is €2,256.95 per month, and the maximum payment amount is €3,761.59 per month. If a parent's salary is within this

range, she or he will not experience an income loss while taking parental leave. However, if the parent's salary is higher than the maximum amount, which is nearly €3,800 per month, then he or she will experience an income loss.

On the other hand, the parent's income loss will still be smaller than it would have been in the pre-reform period. In the pre-reform period, the parent would have received around €1,800 per month, which is even lower than the lowest amount paid in the current regime. Therefore, the increase in remuneration not only reduces the potential loss of income, but it also replaces the existing income of some parents. **Table 9** below compares the average income losses before and after the reform. For these estimations, I first calculated an average monthly income based on the parents' average hourly wages and number of working hours. Then, I calculated the amount of potential foregone income assuming that the parents were working full time and were taking the leave in full-time mode. Since not all the parents opted for parental leave, those who never took any leave did not experience any income loss.

In the calculations below, all parents are assumed to be taking leave. In such a scenario, an average income loss for a father was around €2,529 per month before the enactment of the reform, when the leave was compensated at the minimum social income level (flat-rate payment of €1,800 per month). In the post-reform period, a father's average income loss varies between €942 and €2,542. For mothers, the pre-reform average income loss was around €1,895, and the post-reform average income loss is between €295 and €2,146 per month. These rough estimates show that for parents whose earnings fall within the new leave compensation window, their income losses are reduced. However, for higher wage earners, the amount of foregone income remains high. Another important point that **Table 9** communicates is that mothers have smaller income losses than fathers. It is important to note that these are

average numbers, and that some parents face larger income losses, while others experience income gains.

Table 9 pre-and post-reform average income loss estimates

	Average income loss before the reform	Average income loss after the reform	
Fathers	€2,529	€942 (lower bound)	€2,542 (upper bound)
Mothers	€1,895	€295 (lower bound)	€2,146 (upper bound)

The reform introduced more flexibility than was permitted previously. First, it expanded the leave coverage period from the child’s birth to age 5 to the child’s birth to age 6. Since in two-parent households, one of the parents is required to take the leave immediately after the end of maternity leave, the expansion of the coverage period is relevant for the other parent who intends to use the second parental leave. As the descriptive statistics indicate (see **Figure 8** in Chapter 4) the reform introduced new leave modalities. As before, parents can take the leave in a 6-month full-time mode or in a 12-month part-time mode. Depending on the length of the parent’s contract, the full-time leave could last four months, and the part-time leave could last eight months. This is because beneficiaries are not allowed to take parental leave if their employment contract is shorter than the expected duration of the leave. Additionally, two new alternative leave take-up modes are available. The new options give parents the option of taking leave over a 20-month window in which they can either reduce their working days from five to four per week or they can choose to be on leave for any four months (with no requirement that these months are consecutive) over this 20-month period. This form of “fractioned leave” is only available to parents who work full time.

In short, the 2016 reform expanded eligibility, increased compensation, improved flexibility, and extended the coverage period. The characteristics of

the reform are discussed in an examination of the impact of the reform in Chapter 4.

Fathers' parental leave take-up in Luxembourg), the first parental leave is often used by the mother, while the father tends to take the second parental leave. Thus, this element of the reform is likely to be more pertinent for fathers.

Another change that the reform introduced was in the modalities of the leave. The reform added new leave options to the existing full-time and part-time leave modes. Thus, parents are able to take four months of leave in a fractioned mode over any four months over a 20-month period or by reducing their number of working days from 5 to 4 days a week during a 20-month period. This option provides parents with more flexibility in how they arrange the time they spend at work and on parental leave.

Table 10 below summarises the differences between the pre- and the post-reform parental leave regimes in Luxembourg. At the outset, the reform made the leave easier to use. By addressing the financial concerns and more closely aligning the amount of compensation parents receive with their number of working hours and earnings, albeit with an upper and a lower ceiling, more parents can now afford to take leave. The improvement in flexibility can make it easier to manage leave at workplaces, since, for example, the parents taking the leave do not have to be absent in long blocks. At the same time, the expansion of the coverage period offers parents more opportunities to take leave.

Table 10 Luxembourg's parental leave regime, before and after the reform

	1999-2016	2016-present
Eligibility	<ul style="list-style-type: none"> • Affiliation to the Luxembourg social security system at the time of the birth or adoption and being employed without interruption for at least 12 months prior to Parental Leave <ul style="list-style-type: none"> • Self-employed are eligible • Same-sex parents are eligible 	<ul style="list-style-type: none"> • Working for minimum 10 hours per week • In case of job change during the 12-month preceding the Leave, the new employer's approval is required • For parents on permanent contracts with a probationary period, the leave may be requested only when the probationary period finished • Workers on short-term contract are eligible (leave cannot be longer than the contract)
	<ul style="list-style-type: none"> • All employees eligible if <ul style="list-style-type: none"> ○ working for the same employer at least for 12 months prior to the leave ○ working at least 20 hours per week • Every parent has the right to parental leave even if the other parent is not working, unless the non-working parent is receiving the child-raising allowance (allocation d'éducation)^a. 	

- Flexibility**
- 6 months full-time
 - 12 months part-time

Compensation Flat rate 1,778 euros per month.

- Parents working 40 hours per week
 - Full-time leave of 4 or 6 months
 - Part-time leave of 8 or 12 months
 - Fractioned leave: 4 months within a maximum period of 20 months
 - Fractioned leave: one day per week for up to 20 months
 - Parents working 20 hours or more per week
 - Full-time leave of 4 or 6 months
 - Part-time leave of 8 or 12 months
 - Parents working 10 hours per week or on apprenticeship contracts
 - Full-time leave of 4 or 6 months
- Calculated as a function of the income and hours worked on average during the 12 months preceding the start of the leave and the leave option chosen. There is a fixed ceiling of 3,855,63.

Duration Until the child turns age 5

Until the child turns age 6

a: This policy was no longer active at the time of the 2016 parental leave reform. It was abolished in June 2015.

6.3. Theoretical background and hypotheses

In investigating the parental leave take-up behaviour of first-time fathers under the new parental leave regime in Luxembourg, I draw on Acker's gendered organisations theory (1990) and Risman's (2004) conceptualisation of *gender as a social structure* (emphasis added). The essence of the first theory and my motivations in using it are based on the observation that workplaces function as living environments that invent, reproduce, or reflect the existing gendered structures (Acker, 1990; Bjarnegård & Kenny, 2016). The latter relates to the interactions in the invention and the reproduction of gender at, through, and between workplaces and households. Similar to Acker's arguments that the gender-neutral approach reinforces existing gendered inequalities, Risman (2017) observed that an uneven start further deepens inequalities, and that "such disruption leads to patterned inequality in access to resources, power, and privilege" (p. 212).

Historically, paid labour and workplaces evolved as male-dominated spaces. Consequently, masculine identities and ideals have shaped the work culture. The changes in the composition of the labour force, with more women being engaged in paid work, have led to a shift. Women who perform traditionally masculine tasks have not only been considered a threat to masculine work culture, but also to men's responsibilities in non-workspaces, such as household and care tasks. Acker argued that there is a notion of a universal worker embedded in the nature of work. She wrote that "this worker is actually a man; men's bodies, sexuality, and relationships to procreation and paid work are subsumed in the image of the worker" (Acker, 1990, p. 139). In other words, she suggested a rethinking by arguing that the conception of workplaces as gender-neutral places is a fallacy. The "ideal worker" mirrors and stems from a masculine ideal, and can be observed in organisations where the labour is valued and distributed differently among male and female workers (Blair-Loy, 2003; Kaufman & Petts, 2020). The inherently

intertwined individual and social concepts of gender keep reappearing in the form of gendered culture and stereotypes (Risman, 2017). Depending on which end of the gendered spectrum these types are located, there might be a deviation from the traditional gender-normative culture. However, because of the absence of monetary rewards for care and domestic work, these tasks are considered unimportant. Thus, it could be argued that women's contributions to the household are negated by masculine ideals and treated as insignificant. Therefore, the impact of the change varies depending on the co-parents' intrahousehold negotiations: i.e., whether they follow the path that their external environment is imposing, or whether they create a new structure that opposes the dominant masculine culture of workplaces. The co-parents' preferences and final decisions about the division of labour in the household – and in this case, about parental leave – reflect this variation (Risman, 2004).

When work is constructed based on the traditional gender division of labour, men's fatherhood identities become nearly invisible at the workplace, almost if they have no parenting responsibilities. The notion of the working father sounds almost alien, whereas the concept of the working mother is pervasive and easily understood. As is covered more in detail in Chapter 2 under the subtitle of "Take-up of parental leave: the role of workplaces", in such work environments, imposing a gender-neutral policy only reinforces the existing gender arrangements, rather than creating a new narrative in which male employees' fatherhood identities are normalised.

Relatedly, there is a body of research arguing that the direction of the exposure also shapes gender attitudes and ideologies. In other words, exposure to more gender-equal policies and workplace arrangements is likely to create a desire for more gender equality and encourage egalitarian behaviour. By contrast, exposure to the traditional ideal worker type and to traditional workplace arrangements is likely to discourage gender-egalitarian behaviour (Bolzendahl & Myers, 2004; Davis & Greenstein, 2009; Fuwa,

2004). The importance of workplace conditions becomes more visible in such situations. Even a generous statutory entitlement to parental leave may not find a strong resonance among the target population if the workplace culture does not support taking parental leave. Japan is an excellent example of a country where generous parental leave policies remain seldom used because strong masculine ideals continue to dominate the workplace culture (Goldstein-Gidoni, 2020; Kimoto, 1997).

In short, there is an underlying assumption in this strand of the literature that masculine worker identities and fatherhood identities are intertwined and concurrently emerge in the workplace. This viewpoint is related to Brandth and Kvande (2002)'s reflexive fatherhood concept, which posits that fatherhood is not a constant state of being, but is, instead, a skill to be learned and excelled at. Such a framing allows for flexibility in understanding and interpreting the evolving nature of fatherhood. It also suggests that changes in statutory entitlements, like those implemented by the parental leave reform, can, in turn, trigger changes in behaviour, since these behaviours are undergoing continuous transformation. It also resonates with the duality of structures and embedded gendered structures both within and between the household and the workplace.

Lastly, the assumption that workplace influences the parental leave take-up behaviour of parents also resonates with Giddens (1976)' duality of structure theory, which states there is a bidirectional relationship in the formation of workplace culture. Advanced research on the changes in gender relations by Sullivan (2006, 2016) also supports the assumption that workplaces are gendered by documenting that gender is intertwined interactions within and between households and workplaces. Taken together, these findings confirm Risman's (2004) argument that gender should be placed on the same analytical plane as politics and economics, in which the constant reconstruction of gender is not an isolated concept. It therefore appears that

gender is being continuously negotiated, enhanced, or debunked. Ultimately, new equilibriums are established.

Given Luxembourg's relatively generous gender-neutral parental leave reform, there is an underlying expectation that the new equilibrium will advance gender equality and reduce the division of labour, at least in terms of the allocation of parental leave.

In close association with gendered workplaces, there is an element of the gender pay gap that corresponds to the relative decision-making power of the co-parents and the co-parents' way of doing gender. Although the key focus in this chapter is on the role of the workplace, given the multidimensional nature of parental leave, the intra-household dimension must be included in the analysis of fathers' parental leave take-up behaviour. Since leave compensation was increased under the 2016 reform, special attention to the links between earnings (or earnings capacity) and fathers' parental leave take-up should be paid.

As was discussed earlier in Chapter 2, whether parents can afford to take parental leave and to forego income is one of the key determinants of their parental leave decisions (Blum et al., 2017). Financial constraints can hinder fathers from taking parental leave. Even though the leave take-up rates of fathers remain lower than those of mothers, they are higher when the leave is more generously compensated (Bedard & Rossin-Slater, 2016; Han et al., 2009; Margolis et al., 2019; Moss & O'Brien, 2006; Patnaik, 2019; Reich, 2011; Zhelyazkova, 2013). Whether the generous compensation is equivalent to men's previous earnings, or whether it is sufficient to enable them to take the leave, remains unclear. The cost of being on leave is considered not only in terms of its financial effects, but also in the context of the norms, the workplace culture, and the masculine ideals of fatherhood. Again, the expression of financial concerns is often more complex than a simple calculation of foregone income.

In other words, the gap between the compensation, however generous, and fathers' earnings contributes their parental leave decisions. By the same token, more balanced earnings between the co-parents are associated with greater parental leave take-up by the father, especially when the partner's income is higher (Kaufman & Almqvist, 2017; Lappegard, 2008; Sundström & Duvander, 2002). As was discussed in the Chapter 2 subsection titled **“Take-up of parental leave: resource allocation and negotiations - the role of partners and household characteristics”**, there is often a power struggle between the partners depending on their respective resource sets. The division of labour in the household is closely related to the partners' relative power (Bianchi et al., 2012; Nitsche & Grunow, 2018; Sullivan, 2013; Sullivan & Gershuny, 2016).

In short, parental leave take-up behaviour emerges in a multidimensional space in which macro-level policy intersects with meso-level workplace characteristics and culture and micro-level household characteristics and partners' behaviours and preferences. There is an ongoing interaction between meso- and micro-level characteristics, which keep feeding and shaping each other. This suggests that regardless of the design of the policy itself, the workplace and intra-household dynamics, in the form of both practices and ideologies, will shape the final parental leave take-up behaviour. How gender is being formed and practised at the meso and the micro level will define how gender is being reproduced through parental leave take-up.

Thus, the analysis of the impact of the parental leave reform and of the leave take-up behaviour of first-time fathers in this chapter, and indeed in this thesis, follows the same theoretical path that Acker (1990, 2010, 2016); Giddens (1976); Risman (1987); Risman (2004, 2009, 2017); Risman and Davis (2013); Sullivan (2016); Sullivan and Gershuny (2016) developed and enhanced. Gender is being reconstructed through ongoing interactions between co-parents, households, and workplaces. The embedded

relationships support or challenge existing ideologies, establish new ones, and shape the division and sharing of parenting responsibilities. As individuals recalibrate their positions, their ways of gendering will change, and organisations will adapt. Through an ongoing process of re-making, a new social structure will develop. As Risman (2017, p. 209) put it, “social structures shape individuals, but simultaneously, individuals shape the social structure”. Consequently, parental leave take-up becomes a lens through which they practice, perform, and invent their parenting and gendering.

Against this background, I examine parental leave at three levels. At the macro level, because the same criteria for receiving parental leave apply to all parents, the parental leave entitlement appears to be gender neutral. However, because parental leave is designed as an employment right, workplace characteristics and parental leave take-up cannot be separated from each other. Workplaces and the entire landscape of work with its several actors – e.g., workers, employers, clients, and the market – can be considered as an ecosystem in which the gendered practices of the individuals are reflected, stimulated, or thwarted. This suggests that workplaces could either reinforce existing gender ideologies or working parents' practices or create new ones. In a supportive work environment, taking parental leave could easily become the norm; whereas in a traditional gender-normative work environment, it may be seen as a benefit that is mainly used by female employees. Likewise, the delayed entry of parental leave into the work-life reconciliation policy scene, and the observation that the majority of leave is still being taken by mothers, corroborate these arguments (Haas & Rostgaard, 2011).

In workplaces, the perceptions of mothers' and fathers' parental leave take-up behaviours tend to be different. For mothers, the question is not whether they will take leave, but for how long; while for fathers, the question is whether they will take leave at all (Bygren & Duvander, 2006). Quite frequently, there

is an underlying assumption that mothers will want to take parental leave, perhaps as a “natural” extension of maternity leave, whereas such an assumption does not necessarily apply to fathers. The extent of this gender-based division depends on the extent of the alignment of the organisational structure and the aim of the policy (Atkinson, 2021).

At the micro level, the co-parents’ expectations, capabilities, and desires regarding the parental leave taken by their partner are likely to shape the father’s parental leave take-up behaviour. Each partner’s own parental leave take-up behaviour and his or her own workplace and employment conditions are likely to define his or her own experiences.

Based on these considerations, my interest is in answering the question of whether a gender-neutral policy could alleviate the gendered employment practices (in response to work-life reconciliation policies) of organisations. I can also go a little further and rephrase the question as to what extent a gender-neutral policy that is described as an instrument aimed at bolstering gender equality can lead parents to reject masculine ideals and to avoid reproducing gendered parenting practices. The question of whether, after an increase in leave compensation, the division of parental leave take-up in a household change regardless of the co-parents’ relative resources is another point of interest.

Hypotheses

Luxembourg’s parental leave is formulated as a gender-neutral policy. The eligibility conditions and the specific characteristics of the leave offered are same for each parent. Therefore, Luxembourg is an excellent case study to test whether the newly reformed parental leave policy is strong enough to change fathers’ parental leave behaviour. Research has shown that the introduction of father-reserved leave with a use-it-or-lose-it approach significantly boosts fathers’ leave take-up (Arnarson, 2010; Duvander et al.,

2010; Eydal & Gíslason, 2013; Naz, 2010). The evidence from different policy and country settings shows that fathers are more likely to take parental leave when the leave is well-compensated, and when the leave entitlement is designed as an individual and non-transferable right (Karu & Tremblay, 2018; O'Brien, 2009). In Luxembourg, where the leave policy has a gender-neutral design, and the reform changed the compensation from a flat-rate payment to a higher monthly payment based on the number of working hours and previous salary, financial reasons for not taking parental leave fall away.

Therefore, I expect to observe an increase in fathers' leave take-up (Hypothesis 1).

However, this pattern is likely to differ across groups. Accordingly, I also hypothesise that

this increase will be greater among fathers whose foregone income is lower than it would have been before the reform, or who will not lose any of their salary (Hypothesis 2).

The reform enacted an increase in parental leave compensation with a minimum amount of approximately €600 and €1,800 per month (the change was from €1,800 to somewhere between €2,400 and €3,850 per month). This means fathers who earn more than the minimum social income but within the salary range of the leave remuneration are likely to benefit the most from the reform.

Although there is likely to be an alignment with the salary and the job and workplace characteristics, the evidence shows that at the meso level, company characteristics such as the size of the company, the share of female employees in the workforce, the proportion of blue- or white-collar workers in the workforce, the age composition of the workforce, and the industry sector all play a role (Bygren & Duvander, 2006; Kaufman & Almqvist, 2017; Lewis & Haas, 2005). As large workplaces could have a greater capacity to

accommodate a worker's absence, rates of leave take-up among fathers may be higher at these workplaces (Lapuerta et al., 2011b). Similarly, if an organisation's workforce is dominated by female workers, the employer is more likely to be accommodating of employees' parenting responsibilities, without discriminating against them based on their gender. In other words, these workplaces tend to treat mothers' and fathers' parenting responsibilities equally (Bygren & Duvander, 2006; Duvander & Johansson, 2012; Kaufman & Almqvist, 2017). In companies with fewer women in the workforce and more masculine norms, fathers' parenting responsibilities may not be prioritised, and the transition to fatherhood among male employees may go unnoticed (Atkinson, 2021). Accordingly,

I expect the change to be more pronounced in workplaces that traditionally did not accommodate fathers taking parental leave to the same extent as they have since the reform (Hypothesis 3).

Indeed, this shift may be mediated through the increased leave compensation after the reform. Supporting Acker (1990)'s gendered organisation theory, in evaluating the impact of Luxembourg's 2016 parental leave reform, I would expect the changes at the organisational level to be facilitated by changes in individual behaviour. At the individual level, I also expect to observe an influence of intra-household dynamics. Following the relative resources and bargaining power literature discussed above, I hypothesise that

parental leave take-up rates will be higher in households in which the mother has greater financial power, works longer hours, or has more skills than the father (Hypothesis 4).

In other words, I expect the co-parents' relative resources to be in a competition, and that the partner with a greater resource set will have greater leverage in the decision-making process. In this case, I expect to observe a positive influence of partnering, with a mother who holds greater bargaining

power (resource set) being more likely to push the father to take parental leave.

6.4. Data and methodology

To measure the impact of the 2016 parental leave reform on first-time fathers' parental leave take-up, I employ propensity score matching. In doing so, I use different matching algorithms and inverse probability weighting using a propensity score to obtain the best performing matching model.

A propensity score indicates the probability of receiving the treatment based on their observed covariates (Austin, 2009; Gertler et al., 2016; Paul & Donald, 1983). Furthermore, propensity score matching has been proven effective to reduce treatment-selection bias. It allows a direct comparison between baseline characteristics of treated and control groups in the matched sample (Austin, 2009; Blundell & Dias, 2009).

Following Gertler et al. (2016), based on the covariates listed in **Table 11**, I compute propensity scores, corresponding to each father's probability of parental leave take-up. I then match pre-reform fathers (the control group) who had their first child born between December 2014 and June 2015, with post-reform fathers (the treatment group who had their first child born between December 2016 and June 2017 and estimate the average treatment effect on the treated (ATT).

I constructed six different matched samples by changing the matching specifications. I matched control and treatment groups on the logit of their propensity scores using one-to-one exact matching, nearest neighbour matching (10 neighbours) with calipers 0.01 and 0.002, and Mahalanobis-metric matching and kernel matching methods. I applied the same methods based on a set of covariates, including fathers' individual characteristics,

workplace characteristics and their partners' nationality, employment status and parental leave take-up status.

Once completing the matching procedure, I then performed balancing tests to assess the matching quality (see Appendix). Balancing tests aim to ensure and exhibit no statistically significant differences between covariate means of control and treatment groups after the matching. To cross-validate the matching quality, I checked the common support condition and visually presented the propensity scores of control and treatment units before and after matching. Additionally, I calculated the average treatment effect using inverse probability weighting with propensity scores. This method weighs each control and treatment subject inversely of their probability of assignment (Gertler et al., 2016; Mao et al., 2019).

In addition to the calculation of the average treatment effect of the reform, I looked at the impact of the reform across different sub-groups of fathers. I run the same propensity score matching analysis among different samples separately. For this heterogeneity analysis, respecting the multidimensional nature of parental leave policy, I used workplace characteristics (size of the workplace) as a meso-level element, income quintiles (from Q1 to Q5) and co-parental relative resources as micro-level elements. I looked at the impact of the reform on subgroups of fathers according to the size of their workplaces, the income quintiles, and relative resource sets.

It would have been ideal to have employed this exercise by the workforce composition. However, there was not enough variation across groups to repeat this analysis. Hence, workplace size remained the only workplace characteristic that would enable a meaningful comparison between groups.

Income quintiles divide the population into five groups on the basis of their equivalised disposable income. Q1 represents 20 per cent of the population

with the lowest income, and Q5 represents 20 per cent of the population with the highest income.

Relative income resources represent the households where fathers have a greater share in the household income and household where mothers contribute more to the household income. Relative skills resources are constructed based on parents' employment history. For the heterogeneity analyses the divide was between households where fathers have greater skills resources and households where mothers have greater skills resources. In a similar logic, based on parents' number of working hours, I created a time resource indicator and followed the same analytical exercise on those groups as well. In short, the heterogeneity analyses help document the variation of change across subgroups of fathers based on different clusters.

For the analysis, I use social security register data provided by Luxembourg's General Inspectorate of Social Security (L'Inspection générale de la sécurité sociale) and known as IGSS data, which provides us with specific information regarding parents' parental leave take-up status. Additionally, the data provides information on individual, household, and employment characteristics. I use parental leave take-up during the 18 months after childbirth as our outcome variable. While it would be interesting to add the duration of leave take-up as a follow-up analysis, the homogeneity in the mode of leave take-up for the fathers in our sample (they were predominantly opting for full-time, or part-time take-up but not for flexible use) convinced me to work only with their overall take-up behaviour at this stage. Such analyses would be possible once the updated dataset with full-coverage time becomes available.

The data is at individual-level where all fathers, mothers and children of the same households are linked. Analytical sample consists of parental-leave-eligible first-time fathers and their partners working and living in Luxembourg with their partner and their only child. I excluded self-employed

parents, same-sex co-parents, single parents, and cross-border workers. This exclusion is related to both the nature of the data and policy design. The incomplete information about partners of the cross-border workers and the lack of information about self-employed parents' number of working hours motivated the exclusion.

6.4.1. Identification strategy

The pre-reform group consists of fathers whose children were born between 1 December 2014 and 31 May 2015. To avoid the seasonality effect, for the post-reform group, we take fathers whose children were born between 1 December 2016 (the day when the reform became effective) and 31 May 2017. This gives me a sample of 1,073 fathers, 379 for pre-and 604 for post-reform groups. Because the data end in December 2018, and I pooled fathers over six months, I ended up with an 18-month post-childbirth observation period before and after the reform.

The sample size difference between the two groups is because of the identification strategy. The parents who had their first child born in our defined period but had other children afterwards are censored in the sample. Therefore, I observe a reduction in the size of the pre-reform group. In contrast, the post-reform observation period does not cover long enough time to capture the birth of other children. Hence, I do not experience a similar reduction in the sample. In other words, had I obtained a longer period of data, I would have about the same sample size for pre-and post-reform groups. Thus, in a way, the short post-observation period inflates the sample size for the treatment group. However, I matched with replacement, allowing for one control case to be matched with more than one treatment case, which gives a better-quality match at the expense of increased variance of the estimator (Heinrich et al., 2010; Vyas & Heise, 2014).

Table 11 presents descriptive statistics and bivariate tests before matching and logistic regressions used to predict propensity scores. I show that I have two identical samples of fathers for the pre- and post-reform periods. In both groups, most parents (56 per cent) are native Luxembourgers, and a large fraction of non-native Luxembourgers (21 per cent of fathers and 19 per cent of mothers) are of Portuguese origin. Of this sample, 78 per cent of fathers and 85 per cent of mothers were employed in the private sector at the time of childbirth. Nearly half of the fathers have work experience of over 11 years, whereas about 70 per cent of mothers have less than ten years of work experience. Ninety-four per cent of fathers and 87 per cent of mothers work full-time. One-third of fathers are employed in public administration or defence, followed by construction, transportation, and finance—about half of the parents in the sample work in large companies with more than 250 employees. Fathers’ workplaces are dominated by a male, white-collar, and young (<45) workforce. The sex composition of children seems to be even, with 48 per cent of males and 52 per cent of females born. With 90 per cent of mothers who took parental leave, parental leave take-up appears to be the norm among parental-leave-eligible mothers.

Table 11 Sample description and logistic regression models predicting propensity scores

	N	% contr ol	% Treat ed	Bivariat e X^2 test	B Logist ic
Age	1052			0.859	0.292
Nationality					
Native Luxembourg	532	50.92	49.86	0.238 (0.971)	
Neighbouring countries (Belgian/French/German)	137	12.66	13.26		0.447
Portuguese	211	20.84	19.60		0.052
Other European or non- European	172	15.57	17.29		0.691

Employment type					
Civil servant	860	15.83	19.02	1.97 (0.16)	
Private	192	84.17	80.98		
Weekly working hours					
Marginal part-time or part-time	62	5.01	6.77	0.7184 (0.397)	
Full-time	990	95.99	93.23		
Average hourly salary quartiles					
Q1	207	23.75	18.06	7.3984 (0.116)	
Q2	211	20.58	19.65		0.272
Q3	211	19.00	20.52		0.502
Q4	213	20.05	19.94		0.554
Q5	210	16.62	21.82		0.109
Sector					
Agriculture	76	9.07	6.19		0.206
Construction	136	13.87	12.37		0.979
Trade	115	10.93	10.90		0.961
Transportation	141	11.73	14.29		0.768
Catering	54	6.67	4.27		0.534
Finance	130	13.07	11.93		0.058
Real estate	113	9.87	11.34		0.702
Public administration & defence	224	18.67	22.83		
Education/health	46	3.47	4.86		0.605
Service	17	2.67	1.03		0.060
Company size					
Small (<50)	317	32.98	28.89	3.87 (0.144)	0.661
Medium (50–250)	221	22.34	20.23		0.466
Large (250+)	514	44.68	50.88		
Work experience					
<5 years	298	25.33	30.69	2.7382 (0.254)	0.099
5–10 years	333	32.19	31.27		0.389
11+	421	42.48	38.04		

Proportion of female employees					
0–59 %	964	90.96	91.94	0.37 (0.541)	0.269
60–100 %	88	9.04	8.06		
Proportion of white-collar employees					
0–59%	378	42.55	31.96	11.48 (0.001)	0.009* *
60–100%	674	57.45	68.04		
Proportion of <45 y. o. employees					
0–59 %	242	20.48	24.63	2.46 (0.116)	0.025*
60–100 %	810	79.52	75.37		
Mothers' age	1052			0.66	0.704
Mothers' nationality					
Native Luxembourg	495	45.12	47.41	3.95 (0.266)	
Neighbouring countries (Belgian/French/German)	131	12.93	12.25		0.932
Portuguese	184	20.84	15.85		0.288
Other European or non-European	242	21.11	24.50		0.175
Mothers' employment sector					
Civil servant	692	9.76	11.82	5.12 (0.163)	
Private	117	66.75	64.99		0.460
Independent	50	2.37	5.04		0.069
Not working	203	21.11	18.16		0.051
Mothers' parental leave take-up					
Yes	324	61.48	73.78	16.92 (0.000)	0.000* **
No	728	38.52	26.22		
Child sex					

Male	515	49.87	49.14	0.097 (0.755)	
Female	537	50.13	50.86		0.662
Cons					0.372
N					1052
Significance level * p<0.05 ** p<0.01 *** p<0.001					
Source: IGSS 2020.					

Additionally, I looked at the relative resource set in the household based on co-parents income, time, and skills possessions (see **Table 12**). The motivation behind this was to observe whether there is an element of bargaining power that contribute a variation in fathers' parental leave take-up depending on their bargaining power in the household. In this analytical sample, in majority of the households, co-parents work the same number of hours per week (65 per cent). In 57 per cent of the households, fathers have greater skills set, indicating that they have longer employment history than mothers. The divide according to the financial capacity of the parents seem rather equal across these group of parents. For this sample of concern, in 46 per cent of the households, mothers contribute a greater share to the household income and in 53 per cent of the households it is fathers who hold the greater income contribution.

Table 12 Co-parental resource set in the household

Relative resources	%
Time resources	
Parents working hours are the same	64.92
Mothers work for longer hours	3.69
Fathers work for longer hours	31.39
Skill resources	
Parents have similar skill set	11.46
Mothers have greater skill set	31.22

Fathers have greater skill set	57.32
Financial resources	
Mothers have greater financial resources (based on hourly salary)	46.78
Fathers have greater financial resources (based on hourly salary)	53.03
<hr/>	
N	1,073

6.5. Results

Having created two identical groups with only difference being the timing of childbirth, i.e., right before and after the 2016 parental leave reform, I deployed six matching algorithms. I then employed an OLS regression on the matched sample with a weight variable drawn from best performing matching algorithm to cross-validate our findings. **Table 13** shows the average treatment effects on the treated (ATT). These numbers show the average impact of the reform, in other words, the change, on first-time fathers' parental leave take-up probabilities 18 months after their child's birth. Employing different matching algorithms, the Kernel matching with a caliper of 0.01 and 0.002 outperformed other matching methods we applied. Kernel is also recommended in the literature thanks to its provision of the most precise estimation, see for example, Blundell and Dias (2009).

I found ATT ranging between 18 per cent and 21 per cent, depending on the matching algorithm. The best performing Kernel estimate indicated some 20 per cent increase in first-time fathers' parental leave take-up after the 2016 reform in Luxembourg. This is also consistent with an ATE of 20 per cent when I applied inverse probability weighting. Hence, as expected, I observe an upward shift in fathers' behaviours thanks to the changes brought by the reform.

The 20 per cent change indicates the average impact of the reform; however, the magnitude of the effect varies across groups. To understand the degree of change across different groups of fathers, I employed additional heterogeneity analyses.

The findings revealed that the greatest change after the reform took place among first-time fathers working at small (<50 employees) workplaces. The impact of the reform caused approximately 17 per cent increase for fathers who work in medium or large workplaces. The degree of the impact increases to 25 per cent for those who work in small workplaces. This finding somewhat contradicts the existing evidence from the literature showing that the leave take-up is more prominent at large workplaces and there is likely to be a resistance against it, in small ones. However, since the analysis presents the change, which stands for the magnitude of the impact of the reform, this finding opens a new avenue for re-thinking parental leave policies. This is aligned with the economic theory and long-established empirical evidence from the international studies (Charles & James, 1989; Gerlach & Schmidt, 1990). Parents in higher wage quintiles are accumulated mainly in large-size companies, whereas low-wage earners are mainly employed in small-size companies in Luxembourg. The income replacement effect shows that lower and median-wage earners are expected to be employed in smaller workplaces. In Luxembourg, there is a positive association between wages and company size. Large workplaces tend to accommodate higher-wage-earner employees. This tendency increases the cost of being on leave for those groups of parents.

It is obvious that Luxembourg's 2016 reform succeeded to push a shift in strengthening paternal engagement. This links back to fathers' agency and workplaces as institutions/organisations/means where their agency is formed and manifested. It also signals Luxembourg's recent gender-equality-promoting policy efforts paying off.

To capture the variance derived from fathers' individual characteristics, also in relation to the household dynamics, I then repeated the heterogeneity exercise by wage quintiles and co-parental relative resources. As expected, the greatest change was observed among those who are at the median and lower end of the wage quintiles. For these groups, the income loss was either diminished or completely revoked by the shift from flat-rate payment to the new dynamic calculation of the remuneration. A tremendous change was an increase of 27 per cent and happened among fathers at the median wage quintile (Q3). For the lower-end, the shift was about 23 per cent, whereas for the higher-end, it remained at about nine per cent level.

The fathers who are on the lower-earning spectrum are also the ones who are working in smaller workplaces. Perhaps those already earning larger sums of money have greater capabilities to afford and manage their time away from work. Hence the increase in parental leave compensation did not resonate with as many of them as it did with those who earn smaller sums. The magnitude of change was also higher in households where mothers had a greater share of the household income compared to households where fathers had a relatively higher income share. This pattern does not repeat if mothers have greater skills resources. In other words, longer work experience, when compared to fathers. On the contrary, the change appears to be greater in the households where fathers have greater skills resources (around 21 per cent increase). This may be related to the fact that fathers with more work experience may have greater flexibilities and decision-making power at the workplace as opposed to mothers. Contrarily, in the households where fathers work longer hours, the magnitude of change appears to be minimal – between 14 to 17 per cent. If both parents have the same number of working hours per week, in other words, they have the same time capacity for family duties; there seems to be about 20 per cent increase in fathers' parental leave take-up compared to the pre-reform period. This is aligned with the bargaining power

dynamics and signals a more democratic way of sharing parenting roles than in households where fathers' labour market engagement is stronger than mothers' labour market participation.

Table 13 Average treatment effect on the treated by Kernel matching algorithms across workplaces and wage quintiles

Treatment (1 vs 0)	Kernel matching with Calliper 0.01			Kernel matching with Calliper 0.002			N
	ATT	SE	T-stat	ATT	SE	T-stat	
All fathers	.1985	.0271	7.32	.2021	.0281	7.19	1052
Fathers in large companies (250+)	.1651	.0431	3.83	.1885	.0460	4.09	510
Fathers in medium-size companies (50– 250)	.1728	.0800	2.16	.1990	.0817	2.43	221
Fathers in small companies (<50)	.2581	.0565	4.56	.2710	.0601	4.50	317
Q5	.0929	.0570	1.63	.0870	.0600	1.45	203
Q4	.1886	.0863	2.19	.1999	.0932	2.14	213
Q3	.0890	3.05	.2309	.0943	2.89	.2516	208
Q2	.2309	.0638	3.62	.2516	.0666	3.77	202
Q1	.2276	.0861	2.64	.2781	.0908	3.06	207
Mothers have greater financial resources	.2172	.0467	4.64	.1985	.0423	4.98	496
Fathers have greater financial resources	.1710	.0333	5.12	.1714	.0346	4.94	555

Mothers and fathers have similar skill resources	.1420	.1315	1.081	.1054	.1173	0.90	112
Mothers have greater skill resources	.1641	.0667	2.46	.1864	.0731	2.55	328
Fathers have greater skill resources	.2236	.0338	6.60	.2178	.0365	5.96	604
Mothers and fathers' working hours are the same (time resources)	.2086	.0356	5.85	.2038	.0390	5.23	668
Fathers are working for longer hours	.1395	.0501	2.78	.1749	.0562	3.11	316

Source: IGSS 2020.

To account for the time difference in pre-reform and post-reform groups, the potential effect of business cycle and any other possible confounding period effects, I used OLS regressions before the matching procedure and one after the matching using weights (see **Table 14**). The treatment variable in these OLS regressions distinguishes the period before and after the reform, thus protecting the matching analysis from the lack of time variance. This already gave me a picture aligned with matching estimations, where the reform suggests a 20 per cent increase in fathers' parental leave take-up. It also showed a significant difference in leave take-up across different wage groups.

Table 14 OLS Estimations for fathers' parental leave take-up

	OLS before matching	OLS with Kernel weights
Age	-0.00 (0.88)	-0.00 (0.98)
Nationality^a		
Neighbouring countries (Belgian/French/German)	0.05 (0.35)	0.06 (0.39)
Portuguese	-0.11* (0.04)	-0.07 (0.19)
Other European or non-European	0.01 (0.83)	0.01 (0.83)
Employment type^b		
Civil servant		0.02 (0.72)
Weekly working hours^c		
Full-time vs marginal part-time or part-time	0.14* (0.01)	0.14*** (0.00)
Average hourly salary quartiles^d		
Q1	0.27*** (0.00)	0.26*** (0.00)
Q2	0.14** (0.01)	0.10* (0.03)
Q3	0.13**	0.10*

	(0.00)	(0.03)
Q4	0.10*	0.08
	(0.02)	(0.09)
Sector^e		
Agriculture	-0.07	-0.16
	(0.52)	(0.29)
Construction	-0.22	-0.27
	(0.06)	(0.06)
Trade	-0.16	-0.24
	(0.15)	(0.08)
Transportation	-0.11	-0.23
	(0.33)	(0.11)
Catering	-0.05	-0.20
	(0.69)	(0.21)
Finance	-0.20	-0.27
	(0.07)	(0.05)
Real estate	-0.24*	-0.34*
	(0.03)	(0.01)
Public administration & defence	-0.19	-0.28
	(0.09)	(0.05)
Education/health	-0.02	-0.23
	(0.87)	(0.15)
Company size^f		
Small (<50)	0.03	0.00
	(0.44)	(0.91)
Medium (50–250)	0.02	0.03
	(0.50)	(0.42)
Work experience^g		
<5 years	-0.02	-0.02
	(0.66)	(0.63)
5–10 years	-0.02	-0.00
	(0.58)	(0.90)
Proportion of female employees^h	0.02	0.01
0-59 per cent vs 60-100 per cent	(0.70)	(0.83)
Proportion of white-collar employees^h	0.04	0.03
0-59 per cent vs 60-100 per cent	(0.29)	(0.49)
Proportion of <45 y. o. employees^h	-0.06	0.02
0-59 per cent vs 60-100 per cent	(0.09)	(0.83)

Mothers' age	0.01**	0.01
	(0.01)	(0.19)
Mothers' nationality^a		
Neighbouring countries (Belgian/French/German)	-0.05	-0.02
	(0.30)	(0.71)
Portuguese	-0.02	-0.05
	(0.67)	(0.35)
Other European or non-European	-0.07	-0.07
	(0.16)	(0.16)
Mothers' employment sectorⁱ		
Civil servant	0.05	0.05
	(0.36)	(0.36)
Private	0.17**	0.14
	(0.01)	(0.08)
Independent	-0.04	-0.05
	(0.58)	(0.54)
Mothers' parental leave take-up	0.01	-0.01
	(0.84)	(0.78)
Child sex^j		
Male vs Female	-0.03	-0.04
	(0.25)	(0.16)
Treatment	0.20***	0.20***
	(0.00)	(0.00)
Cons	-0.26	-0.07
	(0.19)	(0.72)
N	1052	1052

Source: IGSS 2020.

Reference categories: ^a Native Luxembourger, ^b Private sector, ^c Full-time, ^d Q5, ^e Service, ^f Large (250+ employees), ^g 11+ years, ^h 0-59 per cent, ⁱ Not working, ^j Male.

p-values in parentheses.

* p<0.05, ** p<0.01, *** p<0.001.

As a final validation, I generated different control groups from previous cohorts and used the kernel matching algorithm. The results, presented in **Table 15**, depicts a consistent picture of the impact of the reform on fathers'

parental leave take-up. The comparison with previous cohorts confirms that there was no anticipation of the policy change. It also shows that I have balanced control and treatment groups, hence providing reliable results. I present the balance tests of these estimations in the Appendix.

Table 15 Matching with Previous Cohorts

	Pre-reform parental leave take-up	N	ATT	SE	T- stat
Dec 2014–June 2015 vs Dec 16–June 2017	13%	1056	.1985	.0271	7.32
Dec 2013–June 2014 vs Dec 16–June 2017	16%	980	.1673	.0312	5.36
Dec 2012–June 2013 vs Dec 16–June 2017	12%	941	.1808	.0371	4.87
Dec 2011–June 2012 vs Dec 16–June 2017	15%	917	.1306	.0361	3.61
Dec 2010–June 2011 vs Dec 16–June 2017	13%	912	.1591	.0389	4.08

Source: IGSS 2020.

6.6. Limitations

Having worked with IGSS data, the social security register data in Luxembourg, comes with great advantages as well as some challenges. As

already explained in earlier sections, it guarantees to work with the entire population of interest and generate precise estimations. IGSS is also unique as it links all fathers, mothers, and their children with each other. Hence, for each father in the analysis, there was also information about their partners. The concurrent use of partner information is a rare opportunity. Moreover, the information on parental leave for eligibility and take-up was explicitly provided in the data. Finally, the detailed information on workplaces endowed me with an immense convenience to explore the depths of the interplay between workplaces and fathers' leave take-up behaviours.

However, there were some shortcomings too. The data does not contain any information concerning education, which often appears to be an essential determinant of leave take-up (Bygren & Duvander, 2006), or any attitudinal information, which would enrich our understanding concerning cultural norms and gender roles. In the literature, this information often comes from studies based on survey data, see, for example Allard et al. (2011); Haas and Hwang (2007). The closest indicator to account for education is the income quintiles which were used for the heterogeneity analyses.

The reform is unique in its design. Because it not only targets parents of children born after the enactment of the reform but also covers parents of children younger than six at the time of its enactment. Although this is spectacular for the children and their parents, empirically, it creates an identification issue. Because it is impossible to use the same fathers' data twice before and after reform settings, to solve this issue and make the best out of the existing setting, I carefully crafted two samples belonging to two different times but identical otherwise.

Because the post-reform data period ended 24 months after the introduction of the reform, and to have a reasonably large sample, I had to pool fathers over a six-month period. This meant the post-reform observation period could not be longer than 18 months. For consistency, I applied the same strategy to

the pre-reform fathers. Hence, the estimations concern the first 18 months after childbirth, not the entire potential leave coverage period, which is 60 months.

Finally, it was not possible to identify which parental leave was taken for which children when there were multiple children in the household. Hence, I had to restrict the interest group to first-time fathers. This caused a sample size drop for the pre-reform group. Because even if there were fathers who had a child during the same period, if they had another child from before, I could not include them in our study. This created a sample size difference between pre- and post-reform groups. However, as explained before, given that the fertility rate in Luxembourg is 1.34 (The World Bank, 2020), I can say the focus on the first-time fathers does not violate my estimates. Moreover, the sample size differences were taken care of by using weights.

6.7. Conclusion and discussion

In this study, using Luxembourg's 2016 parental leave reform, I examined the extent to which a macro-level policy change shifts individuals' behaviour through the means of meso-level and micro-level elements.

First, I measured the average impact of the 2016 parental leave reform on first-time fathers' parental leave take-up in Luxembourg. My interest was to test whether and to what extent after all the changes – flexibility, duration, compensation, eligibility – that the reform brought about the first-time fathers' immediate respond to parental leave have changed. The propensity score matching analyses indicated some 20 per cent increase on average.

This can be read as a worthwhile increase primarily driven by the increase in financial compensation component of the reform. As shown in the previous study of this thesis (Chapter 5), the expansion in eligible population did not affect fathers' access to parental leave significantly (Uzunalioglu et al., 2021).

Hence, there was not a significant change in the composition of parental-leave-eligible fathers before and after the reform. The propensity score matching methodology was also securing this condition. Furthermore, because the observation period was first 18 months after childbirth, the change concerning the lengthened coverage period, i.e., from age five to six, was not a concern either.

Additionally, the majority of fathers were opting for full-time (48 per cent before the reform and 51 per cent after it) or part-time mode (42 per cent and 37 per cent, respectively), and those who preferred the fractioned or more scattered leaves were negligible. This again relates to the observation period, which is capturing the age before the formal care services. Given that the analytical design was clear of these other reform elements, the estimations safely address the causal link between the increased leave compensation and the increase in first-time fathers' parental leave take-up.

I then deployed the same method to discern the extent of the variations, if any, depending on workplace, income and household characteristics. The results show that the impact of the reform was not homogenous across different groups of fathers. The type of workplace, the amount of potential foregone income, and the relative financial power that a father holds in the household have a different say in the fathers' parental leave take-up after the reform. Indeed, as Acker (1990) argued, my analysis showed that organisations embrace and reflect individuals' behaviours and preferences.

The findings challenged the common expectations by showing that the most significant change was happening among first-time fathers working in small-sized workplaces. This was primarily driven by fathers who fall into medium to low-end wage quintiles. The change was associated with the affordability of the leave. Once the income loss disappeared or was heavily diminished, it created momentum in places where one otherwise would not expect such a shift.

Since the reform's effect was most decisive for fathers at the median to lower end of the wage spectrum, this can also be read as the reform's contribution to the equality of opportunities for young children growing up in Luxembourg. In one way or another, the reform had about 22 to 27 per cent more fathers with median to low wage benefit from an entitlement they had not exploited before. This also relates to the increased capabilities of fathers at the lower end of the wage spectrum. With leave compensation approaching to their current earnings level, their capability during leave is also increased compared to before, when they would have experienced an income loss. However, the smaller increase among high-income fathers does not mean that the leave take-up reached a saturation for those who work in large workplaces or at higher end of the wage spectrum. There, the attractiveness of the policy might be completed by some leadership nudge from companies, as suggested in Kaufman and Petts (2020), which relates back to the gendered nature of organisations and how a push from within is inescapable.

The findings also showed that when mothers have greater financial resources relative to fathers, the increase in fathers' leave take-up was higher. The partnership with a financially powerful women strengthened the impact of the reform. Such a relationship can be seen as another confirmation of the multidimensionality of parental leave take-up behaviours. Albeit being an individual entitlement, the decision-making is a multi-layered process and is strongly influenced by intra- and extra-household factors. Empowering women's labour market positions is a worthy investment to generate further push for fathers involved parenting practices.

This is the first study to analyse the short-term impact of the parental leave reform on Luxembourg resident first-time fathers' parental leave take-up, with the most recently available data. Should a longer observation period become available in the future, it will be possible to decompose all the changes that came with reform, i.e., flexibility, coverage too, and draw a

thorough analysis behind the policy elements shaping fathers' parental leave take-up behaviours.

Chapter 7: Negotiating the leave

Timing and duration of first-time fathers' parental leave: the role of intra-household bargaining

Preface

This chapter analyses the factors that shape the initiation and the duration of parental leave among first-time fathers in Luxembourg. Up to this point, the thesis has discussed access to leave and the take-up of leave. This chapter examines leave take-up behaviour in more depth, and questions the role of intra- and extra-household factors in determining the specificities of this decision. Since the analysis of the initiation and the duration of the leave requires the full observation period, the analytical sample used in this chapter is drawn from the pre-reform period. The sample consists of 766 fathers whose first child was born between December 2009 and December 2012, and their partners. Two sets of analyses are employed in this chapter to determine the factors that influenced the initiation and the duration of the leave these fathers took. A key concept embedded in this chapter is that of the co-parents' relative resources and bargaining power. The first analysis focuses on the factors that affected the timing of the leave, and the second analysis examines the duration of the leave in the form of a comparison of the co-parents' preferred leave durations. As explanatory variables, a set of resource measures are used: income, skills, and time resources. Additionally, other control variables, such as the father's and the mother's workplace characteristics, are included. The analyses in the previous chapters and the literature have stressed the role of the workplace. This chapter continues this exploration and adds the role of the mother's workplace as a potential explanatory factor. The underlying assumptions follow a train of thought that suggests that the mother's workplace affects her own parental leave

behaviour, which, in turn, influences the father's leave take-up behaviour. By taking into account the detailed characteristics of the mother's workplace, this chapter provides new evidence that can shed light on the complexities of the parental leave behaviour of first-time fathers in Luxembourg.

7.1. Introduction

The transition to parenthood develops through a series of trade-offs between meeting the care needs of the young child, meeting the family's financial needs, balancing the needs of the two partners, and meeting work-related goals. The new tasks related to the provision of care for young children often compete with parents' pre-existing responsibilities to make a living or to sustain relationships. Therefore, the new parenting responsibilities will likely necessitate developing new ways to cooperate or to adapt. This process may involve a (re)consideration of the division of labour and the distribution of individual resources in meeting the new needs.

The complexity of this situation leaves parents in a position to compare, contrast, and find an optimum way to use their individual and joint resources. The literature provides evidence that the transition to parenthood has generally been associated with paradoxical effects for mothers and fathers. While women often find that their labour market position deteriorates, as their pay declines or their productivity and earnings decrease, when they enter parenthood (Budig & England, 2001; Kaufman & Bernhardt, 2015; Kleven et al., 2019; Kuhhirt, 2011); men often experience better labour market outcomes after becoming a parent (Killewald, 2012; Kuhhirt, 2011). In parallel, another strand of literature has highlighted the importance of spousal economic resources. Accumulated evidence over the past 50 years documented that the partner with the greater economic resources holds the greater decision-making power (Becker, 1965; Sullivan, 2013; Sullivan & Gershuny, 2016). It thus appears that the imbalance in resources is reflected

in inequalities in the division of labour in households (Agarwal, 1997; Antman, 2014; Browning et al., 1994; Ma et al., 2019).

Parental leave policies have become a contemporary policy response aimed at supporting working parents with young children during the years immediately after childbirth (Pfau-Effinger & Hennig, 2012; Singley & Hynes, 2016). Within the work-life reconciliation policies sphere, parental leave policies are considered a means to ensure that women remain in the labour market and that fathers are involved in childcare (Begall & Grunow, 2015; Druedahl et al., 2019; Petts & Knoester, 2018; Singley & Hynes, 2016; Tamm, 2019). Aligned with the economic resources and bargaining power literature, numerous studies have shown that a father is more likely to take leave if the leave is well-compensated and if his partner is a high earner (Almqvist et al., 2011; Almqvist & Dahlgren, 2013; Brooks & Hodkinson, 2021; Bygren & Duvander, 2006; Duvander et al., 2022; Geisler & Kreyenfeld, 2011; Kaufman & Almqvist, 2017; Schober & Zoch, 2019; Twamley, 2019). However, the decision-making puzzle has other pieces that need to be taken into account when examining fathers' parental leave take-up behaviour. Meso-level factors, such as workplace characteristics, must not be overlooked.

The financial aspect of being (or the consideration of being) on parental leave is closely associated with the co-parents' absolute and relative economic power. Parental leave can be interpreted as a form of relief that alleviates the imbalances in the redistribution of labour and resources when transitioning to parenthood. At the outset, the remuneration can be seen as a protection scheme that supports the parent when on leave. The amount of income that is foregone varies depending on the financial capacity of each parent. That is the point when the relative economic resources of the co-parents come to the surface and their bargaining power plays a role.

It is often reported that financial concerns are the primary obstacles parents face when deciding whether to take parental leave. In other words, the opportunity cost of being on leave and the parents' relative contributions to the household income establishes the basis for the way they share the leave (Bygren & Duvander, 2006; Eerola et al., 2021; Närvi & Salmi, 2019). As the previous study in this thesis also showed, the increase in first-time fathers' parental leave take-up subsequent to the 2016 parental leave reform in Luxembourg was predominantly driven by the increased compensation for the parent taking leave. However, focusing only the economic resources and their role in shaping parental leave decisions would be an oversimplification of a much more complex matter. Undeniably, there is an element of multidimensionality that must be considered when examining how bargaining power affects decision-making. In their recent work, Esping-Andersen and Schmitt (2019) tested the role of social networks as a bargaining resource. In their writings, Risman (1998); (2004), and Sullivan (2006) have observed that gender structure intertwines across different levels and contributes to the parents' final decisions with respect to how they do or undo gender. In this study, I include the time and the skills resources, derived from the number of working hours per week and the number of years in paid employment, as additional elements in the co-parents' resource sets.

The co-parents' gender ideologies and the value that they associate with care can also influence these decisions (Bosoni & Mazzucchelli, 2019; Evertsson, 2014; Kaufman & Bernhardt, 2015). However, the formation of the parents' decisions based on their gender ideologies may not take place explicitly (Twamley, 2021; Twamley & Schober, 2019). Parents' resources may align or conflict with their perceived gender practices around the provision of care and parental leave take-up. Consequently, they may end up taking a position in accordance with or despite what they inherently believe.

In Luxembourg, like many other European countries, parental leave is designed as an employment-related entitlement contingent on continuous social security contributions; see, for example, the Luxembourg country note and the 18th International Review of Leave Policies and Related Research (Berger & Valentova, 2022; Koslowski et al., 2022). Because of this prerequisite, a close examination of the parents' workplace characteristics is required. Specifically, because of the employment condition, workplaces must be considered when seeking to understand what factors contribute to parental resources and their bargaining power. This connection once again confirms the findings of O'Brien (2009) and Koslowski and O'Brien (2022), and suggests that care provision for young children and parental leave decisions are not just private family matters.

The multidimensional nature of parental leave decisions sparked my desire to further investigate how such decisions are made by breaking them down into two stages: the timing and the duration of the leave. Consequently, this study aims to explore what factors matter when first-time fathers are making decisions about parental leave timing and duration, and what role intra- and extra-household factors play in these decisions.

In the following sections, I first expand on the interplay between couple negotiations, resource-bargaining power, and fathers' parental leave take-up. Then, I set up the theoretical framework and the hypotheses. After briefly revisiting the Luxembourg context and explaining why the analysis of the timing and the duration of fathers' parental leave is important and complements the narrative of the thesis, I present the methodology and the findings, and conclude with a discussion.

7.2. Theoretical framework: relative resources, intra-couple negotiations and fathers' parental leave and hypotheses

Evidence from other studies shows that fathers' leave take-up is often tied to inter-connected relationships with their intimate partner, colleagues, and peers, as well as social networks and communities (Doucet, 2017; McKay & Doucet, 2010; Twamley, 2021). Everyday negotiations of the division of care labour, housework, and finances between partners mirror how co-parents do or undo gender within their household (Blumberg, 1984; Davis & Greenstein, 2009; Huffman et al., 2014). Studies examining the effect of relative resources on the division of housework also confirm parents' gender ideologies echoing in their division of labour in the household (Davis & Greenstein, 2009; Thébaud, 2010). Results from other studies indicate that when men's bargaining power in the household is more significant than women's, the division of labour is more gendered among them (Antman, 2014; Bolzendahl & Myers, 2004; Breen & Prince Cook, 2005). In parallel, although women's greater participation in paid labour stimulates the negotiations around the division of tasks (Kluwer et al., 2000), the convergence to an equal division of labour within households continues to be slow (Altintas & Sullivan, 2016).

Consequently, women's economic autonomy alone does not appear to be sufficient to transform the division of labour entirely in the household (Breen & Prince Cook, 2005). The norms imposed by society and existing gendered expectations encourage the continuation of a traditional division of labour. As Bolzendahl and Myers (2004) discussed, exposure to gender-equal or unequal environments will mirror that behaviour in households. Similarly, Fuwa (2004) showed a positive association between living in a less gender-equal society and women's increased housework and lower bargaining power. Evidence shows that men who earn a similar salary as their wives contribute to housework more than men who earn higher salaries than their wives do.

However, men who are financially dependent on their wives are not doing significantly more housework (Bittman et al., 2003; Brines, 1994; Greenstein, 2000; Kuhhirt, 2011; Sullivan & Gershuny, 2016). In other words, the relationship between men's relative financial power and their contribution to domestic work is not linear.

Housework and care work are different by their nature. While the former can be classified as mundane, the latter is associated with an emotional return (Bünning, 2020; Hallberg & Klevmarken, 2003; Sullivan, 2013; Thébaud, 2010). However, childcare being more meaningful than housework does not turn men's contribution into a linearly increasing one.

The interpretation of the logic behind this non-linear relationship is complex. While it may suggest men's tendency toward a more traditional attitude, it may also mirror women's more substantial ownership or preference over domestic responsibilities, see Twamley (2019) or Brines (1994). Such behaviour is known as gender deviance neutralisation in the literature, which goes against bargaining power arguments (Bittman et al., 2003; Schneider, 2012). However, the evidence is conflicting. For example, Greenstein (2000) shows that both financially dependent men and higher-earner women reduce their housework.

On the other hand, Sullivan and Gershuny's (2016) longitudinal analysis also finds no evidence supporting gender deviance neutralisation. On the contrary, their findings conform to the relative resources-bargaining power theory, where the husband with low human capital (lower relative resources) tends to increase his housework, and women's bargaining power is the critical determinant in the division of labour in the household. Similarly, the scholarship on fathers has shown that mothers' high earning power and strong labour market position anticipates fathers' parental leave take-up decision and the duration of their leave (Brandth & Kvande, 1998; Duvander et al., 2021).

Since the nature of care work is different, one could expect that fathers, irrespective of their earnings compared to their spouses, would be more inclined to perform their parenting responsibilities—in contrast to other domestic duties such as housework. In dual-earner households, each parent gains their entitlement to parental leave individually through their employment status.

Having access to parental leave entitlement creates a space to discuss, whether there was an intention or not, the division of care labour within the household. However, for some – perhaps even the majority – a (re)consideration of the time use and division of tasks for the provision of care for their infant (or, more broadly, young children) is not necessarily a topic of discussion (Twamley, 2021). This is often because of couples’ implicit assumptions that mothers will be the ones who are going to take the parental leave (Kaufman, 2018; McKay & Doucet, 2010; Romero-Balsas et al., 2013; Twamley, 2021). However, when the leave is designed as an individual and non-transferable entitlement, it offers more room for negotiation between parents – since fathers own their designated leave time in such cases.

Because the level strongly informs parental leave take-up of compensation and the amount of (potential) foregone income, co-parents’ economic resources become even more relevant in understanding their decision-making. The relative resources theory (Blood & Wolfe, 1960) and corresponding literature continue to reveal new evidence that the allocation of resources in households is still predominantly driven by partners’ economic resources and their bargaining power is positively correlated with the power of their economic resources (Bittman et al., 2003; Esping-Andersen & Schmitt, 2019). This behavioural pattern, derived predominantly from parents’ individual and relative financial capacities, suggests a dependency among co-parents. The nature of this relationship goes hand in hand with

Becker's discussions that 'the allocation of the time of any member is greatly influenced by the opportunities open to other members' (Becker, 1965, p. 512).

In understanding and interpreting co-parents' time and resource allocation, a critical matter appears to be how to approach the household: as a single unit or the sum of two individual units. According to Becker (1981), families tend to adopt altruist traits, and these altruist behaviours boost a division of labour where the family resources are allocated conscientiously. In such altruistic households, partners are likely to try to avoid deepening the income gap between each other (Becker, 1981). Whereas if the family acts as a single unit, the higher earner parent is more likely to take selfish behaviour at the expense of expanding the earnings gap with the partner (Becker, 1962). Such allocation of resources leads to some task specialisation, albeit gendered, where mothers end up being the leave takers and fathers are promoted (if not already were) to the household's primary breadwinners. Within the parental leave framework, these preferences do not only relate to the level of compensation. The cost or affordability of leave take-up is also closely associated with the duration and the form of the leave (Fuwa & Cohen, 2007; O'Brien & Wall, 2017).

Another dimension of the leave duration relates to parent-child engagement. The benefits attached to parent-child relationship development also separate the perceptions towards childcare and housework tasks when allocating (or discussing the allocation of) resources among co-parents. The value of childcare parents associate with has greater chances of re-setting their bargaining power dynamics. As argued in previous paragraphs, because the value parents attribute to housework and childcare is different, their negotiations and bargaining arguments are likely to diverge in this domain. This disparity in perception poses a challenge for the bargaining arguments and re-allocation of resources for co-parents.

On the one hand, high-earning parents may choose not to be on leave or keep it short or flexible. In other words, they can still be on leave but only at a minimum cost and low intensity. However, as the literature and the descriptive statistics for Luxembourg in this study suggests, this is not likely to be mothers. This argument is more likely to resonate with high-income earner fathers. These economically resourceful fathers' distance from leave take-up may appear as a *rational choice* for the overall protection of the family income at the expense of a gendered specialisation of tasks (assuming the parental wages are the dominant source of family income) [emphasis added].

Similarly, this behavioural pattern is also observed when the mother is the higher-income earner. Brooks and Hodkinson (2021) showed that a greater income earner parent (either mother or father) tends to act as the protector of the household income and leave the other parent as the caretaker. However, there is also evidence from some studies suggesting that even if earning lower salaries, fathers tend to argue against taking the leave due to potentially greater career penalties (Kaufman, 2017; Twamley & Schober, 2019). This suggests that gender ideologies have the power to interfere with the economic resources arguments and deviate the decision-making power between co-parents. The significance of gender ideologies can also be interpreted as an opportunity for workplaces to change the narrative otherwise.

Alternatively, if I continue assuming that families are more likely to be altruistic (in comparison to the markets), fathers' leave take-up would align with their consciousness about building quality bonds with their children. Irrespective of the amount of foregone income, high-earning fathers (also likely to be highly educated) could choose to invest in their relationship with their young children while enabling their partners' retention in employment. Their more substantial involvement in childcare provision and leave take-up

also translates as increased labour market outcomes of mothers, as new evidence from Germany supports (Frodermann et al., 2023).

Drawing on the resource-bargaining and intra-household negotiation literature, in this study, I focus on the initiation and duration (as a measure of the intensity of parental involvement) of fathers' parental leave take-up decisions and develop the following hypotheses accordingly.

In parallel with the overwhelming evidence from this strand of the literature, I expect that fathers with greater relative economic resources will take their leave at later stages, and mothers' greater relative resources will push fathers to take the leave earlier (Hypothesis 1). This means it will be mothers who are taking the first parental leave right after the end of maternity leave, and fathers will use their right closer to its expiry date, which is before the child turns the age of five.

In line with relative resources theory, the parent holding greater resources will have a more significant say in deciding the duration of the leave. At the outset, I would expect mothers' and fathers' bargaining capacity to compete so that mothers' greater resources will make fathers start the leave earlier and for a longer (more intense) duration. In contrast, fathers' greater resources will make them start the leave later and use it in more flexible terms.

Taking the years in employment as a skill set, I expect that the parent with longer employment history will have a greater skill set (and more likely to earn higher income), therefore, will have greater negotiation power over the time and duration decisions. I would expect to see a negative association between fathers' skill sets and the timing and duration of their leave (Hypothesis 2). In contrast, mothers' greater skill resources may motivate fathers to start the leave earlier and to take the leave longer.

In a similar vein, I also expect fathers with greater time resources compared to mothers to take their parental leave in shorter duration than mothers and

initiate their leave later rather than earlier (closer to childbirth) (Hypothesis 3). In the case of Luxembourg, this could also translate as fathers being more prone to take their leave in part-time mode instead of full-time. Fathers will be more likely to favour the part-time option as they will be able to continue their presence in the workplace instead of a six-month block period.

Concerning parental leave policy's multidimensional structure, I also expect to find an association between fathers' timing and duration of parental leave and their partners' workplace characteristics (Hypothesis 4). The reasoning behind this expectation relates to mothers' capacity to take parental leave. Following a similar logic as Whitehouse et al. (2007), I expect to see mothers' workplaces being a determinant of their parental leave take-up. That outcome will likely influence fathers' leave behaviours as well. Mothers' working at a family-friendly workplace may not affect fathers' behaviour significantly. However, if the mother is facing difficulties in taking parental leave at the time and length they want, that struggle may force fathers to respond according to the family's needs. Therefore, I expect to see a negative correlation between the feminisation of mothers' workplaces, the size of mothers' workplaces, the rate of younger employees in the workforce and fathers' earlier start to parental leave (Hypothesis 5). In other words, if the mother faces difficulties in leave take-up, fathers will be more likely to take responsibility as early as possible.

7.3. Timing and duration of parental leave in Luxembourg

In Luxembourg, parental leave is presented in two parts: first parental leave and second parental leave. The legislation dictates the first parental leave to be taken immediately after the end of maternity leave. Once this first leave is taken by one of the parents, the other parent is granted the second parental leave, which can be taken any time before the child turns the age of five. This means that despite the eligibility status being evaluated individually, parents'

access to leave depends on each other's behaviour. Such interdependency opens an avenue of discussion for parents in two respects. The first one to decide which parent is to take the first parental leave. Once this decision is set, there comes the second decision for the other parent to decide when to take the leave. As mentioned earlier, as opposed to the first parental leave, the second parental leave can be taken before the child turns five (and six after the 2016 parental leave reform). Therefore, more flexibility is reserved for the parent taking the second leave.

It is also worth mentioning that this period coincides with the compulsory schooling age. Centre-based care services are available privately for children younger than the age of three, and from the age of three onwards, children are legally entitled to elementary school, and participating in preschool education is mandatory for children of the ages of four and five in Luxembourg. 87.5 per cent of children above the age of three and 96.6 per cent of children between the age of four and five attend an early childhood education and care service (European Commission/EACEA/Eurydice, 2019). Because compulsory early education is more extensively available after the child's third birthday, there seems to be room for more intensive parental involvement for the years before the start of compulsory schooling.

Descriptively, the IGSS data show that mothers almost always take the first leave right after maternity leave (from approximately 12 weeks after childbirth). Of the 84 per cent of leave-taking mothers, 94 per cent take the first parental leave. In contrast, the parental leave take-up among this group of fathers is at a 25 per cent level (N= 189). Of these leave-taking fathers, only 16 per cent of them take the first parental leave, and the remaining 84 per cent opt for the second parental leave.

Having observed the distinctive division between first and second leave preferences among co-parents, one could question the necessity for analysing the fathers' parental leave timing. There could also be concerns around

breastfeeding responsibilities, which may not give a large room to manoeuvre for mothers to start their parental leave later. However, a 2015 survey based on a representative sample of Luxembourg shows that in Luxembourg, the 6-month breastfeeding rate is 45 per cent (exclusive breastfeeding was 2.6 per cent) and the 12-month breastfeeding rate is 23.7 per cent (Descroches et al., 2018). In other words, no substantial evidence suggests many mothers continue breastfeeding after the first few months in Luxembourg. Moreover, the second parental leave can be taken any time before the child turns five. This allows parents flexibly decide on the starting time of their parental leave. An analysis of the timing of parental leave, whether the second leave is taken concurrently, subsequently, or after some time – if ever taken – provides insights into how co-parents negotiate their time-use among each other. Therefore, despite distinctive preferences for the use of first and second parental leave, the timing of the second parental leave enables understanding of the intra-couple mechanisms and division of care labour between co-parents.

Throughout the two decades of implementation of parental leave in Luxembourg, there is a slow but steady progress in fathers' leave take-up (see Section 0 in Chapter 4). Although due to data limitations in this study, I am only looking at the timing and duration of parental leave before the 2016 reform period, it is important to highlight the overall picture regarding fathers' parental leave take-up over time in Luxembourg. With the evidence provided in the previous chapter, the 2016 leave reform increased first-time fathers' parental leave take-up by about 20 per cent. This change was predominantly due to the reform's increased leave compensation element. Within the limits of this current study, because of the pre-reform focus, I am not observing a change in compensation. Hence, there is no dramatic expectation of a behavioural change over the coverage period observed in this study. However, the findings presented here should be considered a baseline

for future studies when the entire observation period covering post-2016 reform becomes available.

7.4. Data and sample

To test the five hypotheses listed before, as in the previous studies of this thesis, I continue using IGSS data. However, for this specific study, I only focus on the pre-2016 reform period. The sample consists of parents of children who were born between December 2009 and December 2012. Restricting the sample to this window allows me to observe these parents throughout the entire parental leave period, which is five years. Furthermore, limiting the sample to this time window also secures that there is no contamination of the 2016 reform, which, we know, influenced fathers' behaviours.

This chapter contains two analyses, which complement each other to explore the details of first-time fathers' parental leave take-up behaviours. One focuses on the measurement of the initiation of the leave, and the second focuses on the duration of the leave. For both analyses, I work with Luxembourg-resident, parental leave eligible, heterosexual co-parents whose only child was born between December 2009 and December 2012. Focusing only on parental-leave-rich households leaves me with a sample of 766 fathers and 766 mothers.

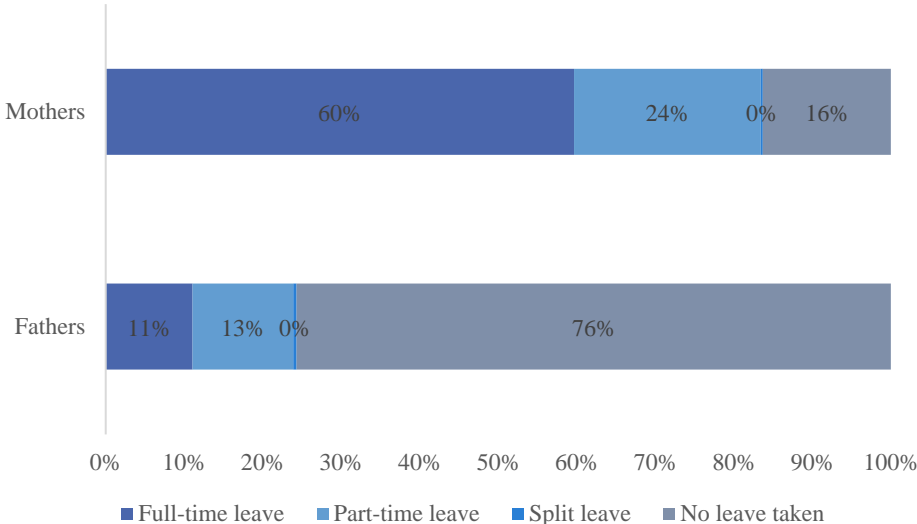
Descriptively, the parents in the analyses are predominantly native-Luxembourger who work in the private sector. The majority of the sample consists of native Luxembourger fathers and mothers (55 per cent each), followed by Portuguese (20 per cent), other EU or non-European (13 per cent), and parents from the neighbouring countries (11 per cent). The composition is parallel with Luxembourg's national statistics, where the Portuguese community forms the majority of the foreign-born citizens. The parents in the sample are mainly occupied in private sector jobs (80 per cent

vs 20 per cent) with full-time employment contracts (95 per cent for fathers, 87 per cent for mothers).

The descriptive statistics indicate a somewhat segregated labour market by gender when looking at the sectors that these parents are employed. For example, construction and transportation appear to be male-dominated industries in contrast to education and health, where mothers seem to be more in this sector than fathers do. About half of the mothers and fathers work in large workplaces (more than 250 employees). Fathers tend to work in male-dominated workplaces in contrast to mothers, who tend to work in female-dominated workplaces. For both mothers' and fathers' workplaces, the workforce seems to be relatively young, with the majority being younger than 45 (around 90 per cent for each) and white-collar (60 per cent for fathers' workplaces and 70 per cent for mothers' workplaces).

The majority of parental leave takers are mothers (see **Figure 11**). Nearly 84 per cent (83.81 to be precise) of mothers took parental leave, whereas, for fathers, this remained at 25 per cent level (24.67 to be exact). Full-time leave take-up is more common among mothers, whereas more than half of the leave-taking fathers prefer part-time leave.

Figure 11 Parental leave take-up among mothers and fathers (with children born between Dec 2009 and Dec 2012) in Luxembourg



N = 766 fathers, 766 mothers

7.5. Methodology

7.5.1. Timing of the leave

Like in any other event studies, I have two ordered events: one being the cause happening at time t and the other being the effect taking place later at a time t' . The time gap between these two events can neither be zero nor infinite (Blossfeld, 2019). In our case, childbirth is the first event, which is the cause. The second event, which is the effect, is parental leave take-up.

For this analysis, I am only focusing on the pre-reform fathers, whom I can observe sixty months period after childbirth. With my selection, the time interval between childbirth and the start of parental leave can be from the 2nd (end of maternity leave) to the 60th month (end of parental leave coverage period). The formal notation for the probability of parental leave take-up taking place after childbirth time t and t' can be written as follows $\Pr (t \leq T_y < t' | T_y \geq t)$ (Blossfeld, 2019). The calculation of the probability ratio

of *transition* or *hazard* is defined by Coleman (1968) as $(t \leq T_y < t' | T_y \geq t) / (t' - t)$. Further, the *transition* or *hazard rate* is formulated with the following notation: $(t) = \lim_{t' \rightarrow t} \left(\frac{\text{Pr}(t \leq T_y < t' | T_y \geq t)}{t' - t} \right)$.

The hazard rate corresponds to the risk of transition from not experiencing the event to experiencing it. To put it in more concrete terms, based on a set of existing conditions (personal, partner and workplace-related covariates), I calculate the probability of transitioning from no leave take-up to leave take-up after childbirth. To execute this goal, I used non-parametric Kaplan-Meier estimates, which gave me median survival time, and parametric Weibull distributions to compute hazard ratios with a more complex model. The Weibull model is both accelerated and proportional. This makes it stronger than the widely used Cox model and allows the treatment effects to be interpreted as hazard ratios and relative increase and decrease in the survival time (Carroll, 2003). The use of the Weibull model, in addition to Kaplan-Meier curves, helped me estimate the survivor function and the treatment effects more precisely. As explanatory variables, I used co-parents' relative resources in terms of income, time, skills, and access to parental leave, and, their nationality, employment sector, company size, feminisation level of the company, white-collar employee rate of the company, share of 45-year-old employees in the company.

7.5.2. Duration of the leave

I embark on the second analysis with a multinomial regression looking at co-residential parents' joint leave take-up decisions. I used co-parents' relative leave duration as the outcome measure, corresponding to the intensity of care involvement.

I did not calculate a new variable measuring the duration of the leave by subtracting the leave's start date from the leave's end date because of available

leave modes in Luxembourg. The part-time use of leave suggests a longer leave length. However, it does not mean an intense involvement in childcare. Consequently, I used the full-time, part-time, and non-leave take-up as options indicating the duration of the leave. Because I am interested in co-residential parents' joint leave strategies, I calculated a new variable based on two parents' leave take-up behaviours (see the following sections for detailed descriptions). Having a multi-category outcome variable, I decided to proceed with multinomial regressions (Anderson & Rutkowski, 2008).

7.5.3. Variables

Dependent variable (timing of the leave) – For the first analysis, where I focus on the timing of fathers' leave take-up, I define a new dependent variable. In this part, the dependent variable is the timing of the parental leave take-up, which, at the earliest, can start on the 2nd month after childbirth and can be taken on the 60th month after childbirth at the latest. I generated this variable by calculating the distance between the start of the fathers' leave take-up and the birth date of the child.

Dependent variable (duration of the leave – joint leave take-up strategies) – Because my specific interest is in the relation between co-residential parents' joint leave take-up decisions and the duration of fathers' leave, I generated a new variable capturing the duration of their leave and joint leave take-up decisions. I did not simply calculate a duration variable based on the differences between the leave start and end date because of the availability of the part-time option. As shown descriptively, leave-taking fathers are prone to use their leave in part-time mode. Therefore, to capture the intensity of the leave between co-parents, I preferred to create a new variable that measures the relative leave duration and intensity among parents. The new variable is derived from the combinations of mothers' full-time/part-time/no take-up statuses with fathers' full-time/part-time/no take-up statuses. Based on these

categories, I created a measure defined as parents sharing the leave equally, mothers taking longer leave, and fathers taking longer leave. Using this multi-category variable, I employed multinomial regressions, giving me probabilities of the chosen strategy as opposed to the base model, which in this case, mothers' taking longer parental leave than fathers do.

Independent variable – To empirically test the influence of intra-partner context, I created three measures representing their relative resources derived from parents' income, time at work, and work experience. One is the fathers' relative share in the household income, inspired by Bittman et al. (2003), and initially proposed by Sorensen and McLanahan (1987). I take parents' monthly salaries as the primary source of household income and continue my calculations based on this assumption. Next, I deduct the mothers' average monthly wage from the fathers' average monthly wage and divide it by the sum of their salaries. The formulation of this measure looks as follows:

$$\text{Relative household income} = \frac{(\text{Husband's income} - \text{Wife's income})}{(\text{Husband's income} + \text{Wife's income})}$$

This gives me one if the husband is the sole income provider in the household and 0 if they have an equal income. If this value is -1, it means that mothers are the only breadwinner in the household. To be consistent with the existing literature, see, for example, Bittman et al. (2003); Brines (1994); Gupta (2007); Sorensen and McLanahan (1987), and due to complex relationship threads between couples' earnings and decision-making patterns, I also included squared version of this variable in addition to the initial linear version. It would show the husband's share of household income if there were a non-linear relationship.

Following the same tradition as Heckert et al. (1998), Bittman et al. (2003) and the original proposal of Sorensen and McLanahan (1987), I created the relative income resources measure from co-parents' annual earnings to compare the proportional contribution of each parent into the household

income. The initial motivation behind this variable and this way of calculation is to understand who the primary breadwinner is in the family. This measure shows the extent of parents' contribution to household income. In other words, as Sorensen and McLanahan (1987) put it, this measure also corresponds to co-parents' level of dependency on one another. A value of 1 would mean that wives are entirely dependent on their husbands' earnings, and -1 would mean that husbands are entirely dependent on their wives' income (Bittman et al., 2003; Sorensen & McLanahan, 1987). A value of zero would mean complete independence. For example, if the relative income ratio is, say, 0.4, it would mean 'that the wife derives 40 per cent of her share of the couple's combined income from her spouse' (Sorensen & McLanahan, 1987, p. 664).

To account for the parents' labour market potential, I added their individual hourly wages into the equation. The hourly wages relate to the labour market potentials of co-parents. The inclusion of this variable is important because it also accounts for the degree of labour market attachment of parents. Hence, it has the potential to capture a greater variance between fathers' and mothers' labour market outcomes (Gupta, 2007). It also helps expand the discussion towards the co-parents' autonomous powers rather than the relative. Having an hourly measured salary variable next to the parents' proportional contribution to the household income is also accepted in the literature (see Bittman et al. (2003) as an example). Therefore, it is safe to have these variables together in the model.

Second, I created a relative time resource measure derived from parents' labour market engagement. The basis of this new indicator is parents' number of working hours. I separated three cluster of parents where they are working equal number of hours, mothers work for longer hours, and fathers' working hours are longer than mothers.

In a similar token, I created a relative skills resources measure derived from parents' work experience. This variable has three categories indicating whether the parents have an equal number of years of work experience or one of the parents have more experience, hence a greater skills set, compared to the other one. As the years of work experience are often positively correlated with individuals' ages, I did not include a separate age variable in order to avoid the risk of multicollinearity. The relative time and relative skills variables account for parents' age and intensity of labour market attachment, which correspond to their potential labour market outcomes.

Control variables – In addition to my key interest in parents' relative resources, I have some control variables to capture extra-household factors' influence, particularly those drawn from meso-level workplace characteristics. I have four essential variables: the size of the workplace, the proportion of female employees, the proportion of employees younger than 45, and the proportion of white-collar employees in the workforce. These three variables about the workforce composition are crucial as they are used as proxies for the workplace culture. As per the nature of this data set, there are no variables for the collegial or managerial attitudes or any workplace-specific measures addressing employees' parenting responsibilities. For example, workplaces with a high number of female employees are more likely to experience employees being absent following childbirth – as entry to motherhood is associated with more frequent and more prolonged interruptions in the labour market (Bächmann et al., 2020; Bächmann & Gatermann, 2017; Gupta & Smith, 2002). Employee absenteeism due to childcare responsibilities would be considered just as normal as being on annual leave for mothers, whereas it may not appear as natural as for fathers. The age composition of the workforce and their behaviours, especially for parental leave, would indicate the extent to which ideal worker norms are embraced in the workplace. The parental leave take-up rates in a workplace

dominated by young employees could hint at the level of family friendliness in the workplace. Low rates of parental leave take-up would mean stronger ideal-worker norms as the established culture. The white/blue-collar ratio would be a proxy for the employees' education level, hence could reflect their ideals as involved fathers.

Additionally, I use a variable distinguishing between private sector employees and civil servants and another variable showing the economy sector. These variables are to show whether there are sectoral variances among parents' parental leave practices. The private-public sector division and the specific employment sector categories are also used in other studies as control variables; see, for example, (Anxo et al., 2007; Bygren & Duvander, 2006; T. Lappegård, 2012). The use of these variables is also common in Luxembourg-specific research, as demonstrated in a recent article by Valentova et al. (2022). This is also thanks to the richness of data available for fathers and mothers. The use of employment sector specification deepens the granularity of the model, which would be insightful for devising sector-specific policy recommendations, where and if necessary.

Lastly, nationality variables are added to the equation to grasp a more comprehensive understanding of the role of intra-household characteristics. As explained earlier in Chapter 4, Luxembourg has a complex population structure with a significant share of immigrant communities. Hence, the inclusion of these variables increases the precision of the estimates.

Table 16 exhibits parents' relative resources capacities in time, skills, finances, and parental leave domains. This table shows that majority of the co-parents in this study have similar time resources. Fathers tend to have greater skill resources as they have greater years accumulated in the labour market in comparison to mothers. Regarding economic resources, in more than half of the households, fathers seem to have greater economic power in comparison for mothers. In 54 per cent of households, fathers have greater

financial resources than mothers, and in 46 per cent of households, mothers have more financial resources when compared to fathers.

Table 16 Co-parents' relative resources

Relative resources	%
Time resources	
Parents working hours are the same	82.25
Mothers work for longer hours	4.44
Fathers work for longer hours	13.32
Skill resources	
Parents have similar skill set	12.27
Mothers have greater skill set	29.63
Fathers have greater skill set	58.09
Financial resources	
Fathers' share in household income (0/1 scale)	.0068
N	766

7.6. Results

In understanding the role of intra-couple relationships on fathers' parental leave take-up, I looked at the timing of their leave uptake and then the duration of their leave take-up as in the joint leave take-up decisions. To present the entire parental leave coverage period, for the first part of the analysis, I focused solely on fathers whom we can observe throughout the full (potential) parental leave period without being exposed to the changes of the 2016 reform. In the second part of the analysis, in which I examine the duration (or mode) of fathers' parental leave take-up from co-parents' joint leave take-up perspective, I covered all the fathers irrespective of the parental leave regime that they are subject to. In the following, I first exhibit the

findings on the timing of fathers' parental leave uptake and then continue with the duration of their leave.

7.6.1. The timing of fathers' parental leave take-up

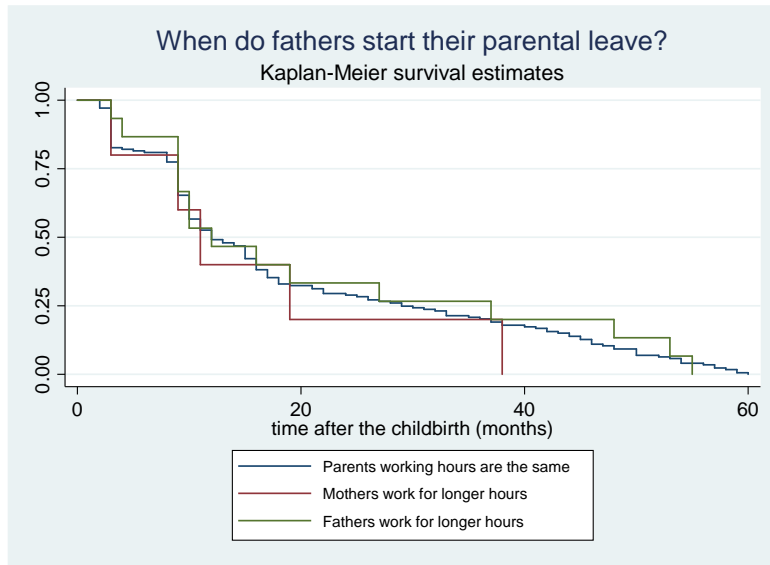
Analysis of fathers' survival time, i.e., the total person-time after childbirth until the leave take-up for fathers, i.e., the total analysis time at risk, is 3,766 months. The median entry to parental leave for fathers is the 12th month after childbirth. The earliest start is observed at the 2nd month, and the latest appears to be on the 60th month. The hazard or incident rate is 0.0501. I estimate a 25 per cent probability of starting parental leave within nine months, and 50 per cent probability within 12 months, and a 75 per cent probability within 31 months for fathers.

For the analysis, I use both a non-parametric estimator, i.e., Kaplan-Meier, and a parametric one, i.e., Weibull distribution. In Kaplan-Meier, I only look at relative resource groups in categories, i.e., I compare the timing of fathers' parental leave take-up by their skills, time, and financial resources. In the Weibull distribution, I add a series of covariates, which have potential importance, as the literature suggests, in fathers' parental leave behaviours.

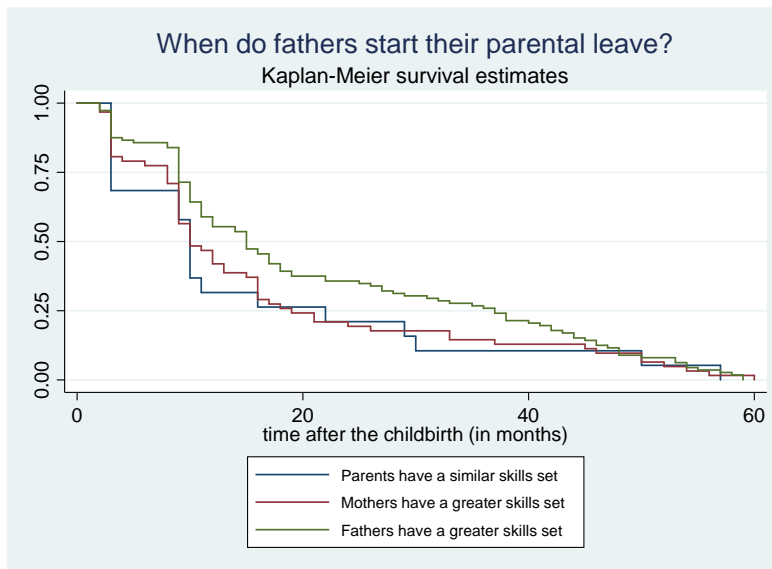
The Kaplan-Meier curves presented in **Panel 1** that fathers tend to start their leave later than mothers when they work for longer hours (time resources), have greater skills set, and have greater financial resources. Their median start time for parental leave is around the 18th month after childbirth in all clusters.

Panel 1 Survival estimates by parents' relative resource capacities

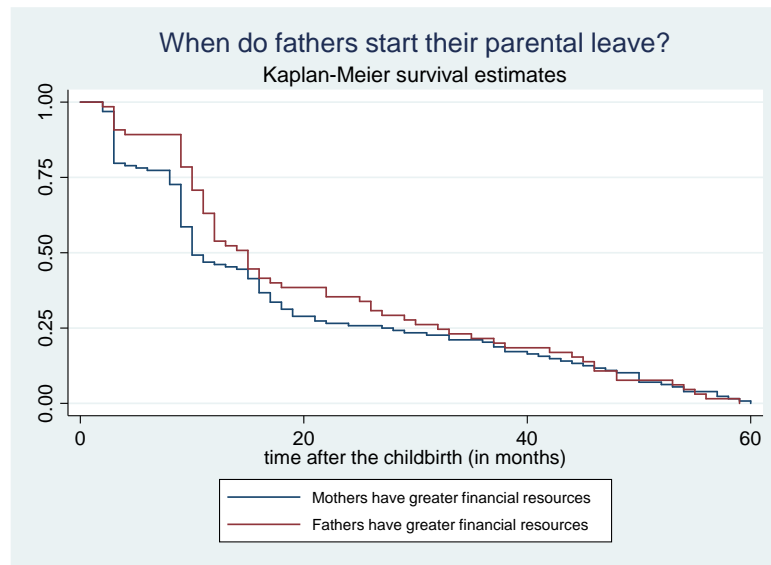
1.a. Relative time resources



1.b. relative financial resources



1.c. relative skill resources



A fully parametric hazard function illustrates the distribution of survival time and how that distribution changes with the covariates entered into the regression (Hosmer et al., 2008, p. 68). The associated parametric model based on the fathers' individual characteristics, mothers' individual characteristics, their workplace characteristics, and their relative resources, i.e., relative share in the household income and relative time spent in paid work, indicated that what matters for the timing of the fathers' parental leave take-up lies both in their and their partners' nationality and employment sector. The hazard ratios presented in **Table 17** reveal the risk of experiencing the event during the observation time (Clark et al., 2003). The coefficients with a p-value lower than 0.05 indicate a statistically significant association with the corresponding coefficient and the survival time at a 95 per cent confidence interval. A smaller than one β coefficient indicates a negative association between the covariate and the hazard rate. In the table, statistical significance is presented at 99, 95, and 90 per cent confidence intervals.

Table 17 presents the factors that shape fathers' survival time when entering parental leave. The estimations indicate the sector that parents are employed in, the workforce composition in their workplaces and mothers' individual earnings as the most important factors significantly influencing the fathers' timing into parental leave. In contrast to the expectations, relative financial, time, and skills resources do not appear to be significant elements. Additionally, fathers' nationality (if from other or non-European background) and employment at medium-sized workplaces seem to have a significance at a weaker (90 per cent confidence interval) degree. The magnitude, as well as the direction of these factors, varies. Below, I discuss these in detail.

A hazard ratio indicates the propensity of an event occurring. In the case of first-time fathers' parental leave initiation in Luxembourg, being employed in agriculture, construction, trade, transportation, finance, and education is negatively associated with earlier leave start, with hazard ratios varying between 47 per cent (transportation) to 85 per cent (construction) lower risk of starting the leave earlier when compared to fathers who work as civil servants.

When the fathers work in a mostly feminised workplace, they are three times more likely to initiate their parental leave earlier than fathers who work in workplaces with low shares of female employees. This pattern is repeated for fathers whose partners are working in female-dominated workplaces too. When mothers work in feminised workplaces, fathers' probabilities of initiating leave earlier than later increase by 2.8 times.

A unit increase in mothers' average hourly wages is associated with a four per cent decrease in fathers' earlier leave take-up (HR = 0.96). This finding goes against my intuition and expectations. However, both the significance as well as the magnitude of the effect is minor. This is likely to be related to

the selected group of parents with similar profiles in employment and earnings.

When it comes to mothers' employment sectors, trade, catering, education, and health and service sectors are where fathers' have lower hazard ratios to start parental leave earlier. The hazard ratios varied between .34 to .22, suggesting between 64 and 78 per cent lower chances of fathers initiating leave earlier when they are partnered with mothers in these sectors. It is difficult to observe a trend derived from parents' sectoral engagement. On the one hand, finance and construction appear as male-dominated industries and are associated with a lower risk of taking leave earlier for fathers. On the other hand, being employed in traditionally female-dominated industries, such as education and health or partnering with a woman working in these sectors is also associated with lower chances of an earlier start of parental leave for fathers. This contrasts with what the workforce characteristics suggest: working in a female-dominated workplace or being partnered with a woman who works in a female-dominated workplace is associated with higher risks of taking leave earlier (3 times and 2.8 times, respectively).

Albeit weakly, being from other European or non-European countries increases fathers' hazard ratio of initiating leave earlier by two times compared to native Luxembourgish fathers. A similar pattern (with weak power) is observed among fathers who work in medium-size workplaces in contrast to fathers who work in large-size workplaces (HR = 1.61).

Being from other EU countries (i.e., not from neighbouring countries or Portugal) or if they are non-European, their hazard rate is 2.08 times higher when compared to native Luxembourgish fathers. In other words, this group of fathers have a shorter survival time, and they are more likely to start their parental leave earlier when compared to native Luxembourgish fathers. Working in agriculture, construction, trade, transportation, finance, and

education and health is negatively associated with hazard rates of fathers who work as civil servants. This means that the fathers employed in one of these sectors have longer survival time and tend to start their parental leave later than civil servant fathers. The fathers who work in workplaces with a higher share of female employees have a hazard rate 2.82 times higher than fathers whose workplaces accommodate a lower share of female employees.

The power and the direction of the effect reverse when the age composition of their workplaces is considered. Being employed at a workplace with a larger share of young employees is associated with a negative hazard rate. In other words, when fathers work at highly feminised workplaces, they tend to start their leave earlier compared to fathers who work at male-dominated workplaces. This finding supports the role of workplace culture. The feminised workplace is likely to be more familiar with their employees being on parental leave. Hence organisational culture enables fathers' leave take-up.

The analysis of fathers' parental leave initiation did not fully support my expectations derived from the relative resources-bargaining power literature. While being interesting, it is a sign to recall the sample characteristics. The focus on first-time parents who are both eligible for parental leave leaves little room for variation across fathers' and mothers' characteristics. The parental-leave-rich household indicates a resourceful household environment where both parents are eligible for parental leave. However, the details are worth noting. In this sample, only 25 per cent of fathers (N = 189) are taking parental leave.

In contrast, 84 per cent of mothers (N = 642) are taking parental leave. The survival estimation on fathers' leave take-up suggests the importance of workplace characteristics, in the form of the employment sector and workforce composition, to a degree of greater significance than co-parents'

relative resources to each other. This finding opens a new avenue of discussion in the analysis and understanding of fathers' parental leave take-up: it is not only the intra-household characteristics but also extra-household characteristics that play a role in shaping fathers' parental leave take-up behaviours. The findings failed to confirm the Hypotheses arguing the importance of relative resources. Both for fathers' and mothers' workplaces, the feminisation of the workforce is associated with an earlier start to parental leave, and a young workforce is associated with a later start to parental leave for fathers. This relationship is aligned with the expectations formulated in Hypothesis 5. The feminisation of the workforce and its better accommodation of parental leave take-up for both fathers and mothers could be interpreted as a proxy for the workplace culture and this culture being family friendly. The positive associations between a larger share of female workers in the workforce and an earlier start to parental leave can be taken as evidence in the family friendliness of the workplace, similar to Kleven et al.'s (2019) interpretations of family friendliness of a workplace and entry to parenthood.

Table 17 Hazard ratios from Weibull distribution model

Covariate	Haz. Ratio	P> z
Financial Resources		
Fathers' share in the household income	.305	0.213
Fathers' share in the household income squared	.397	0.198
Average hourly salary of fathers during the past 12 months before childbirth	1.011	0.596
Average hourly salary of mothers during the past 12 months before childbirth	.962**	0.042
Relative Time Resources		

Base: parents work for equal hours		
Mothers work for longer hours	1.899	0.281
Fathers work for longer hours	.978	0.958
Relative Skill resources		
Base: Fathers have greater skill set		
Parents have similar skill set	1.765	0.124
Mothers have greater skill set	1.283	0.253
Fathers' workplace size		
Small (<50) (vs. Large 250+)	1.522	0.203
Medium (50-250) (vs. Large (250+)	1.610*	0.096
Fathers' employment industry		
(Base civil servants, defense)		
Agriculture	.353**	0.006
Construction	.153**	0.002
Trade	.303**	0.012
Transportation	.531**	0.034
Catering	.328*	0.084
Finance	.385**	0.037
Real estate	.521*	0.091
Education, health	.248*	0.039
Service	.164*	0.053
Workforce composition at fathers' workplace		
Share of female employees	3.17*	0.038
Share of white-collar employees	.793	0.449
Share of employees younger than 45	.559	0.102
Mothers' workplace size		
Small (<50) (vs. Large 250+)	.713	0.242
Medium (50-250) (vs. Large (250+)	1.017	0.948

Mothers' employment industry		
(Base: civil servants, defense)		
Agriculture	.388	0.150
Construction	.232*	0.082
Trade	.348**	0.037
Transportation	2.14	0.207
Catering	.226**	0.028
Finance	.924	0.799
Real estate	.647	0.360
Education, health	.276**	0.002
Service	.223**	0.015
Workforce composition at mothers' workplace		
Share of female employees	2.82**	0.003
Share of white-collar employees	.665	0.231
Share of employees younger than 45	.574	0.109
Fathers' nationality		
Base: native Luxembourger		
Neighbouring countries (DE-BE-FR)	1.045	0.920
Portuguese	1.054	0.910
Other EU or non-European	2.025*	0.099
Mothers' nationality		
Base: native Luxembourger		
Neighbouring countries (DE-BE-FR)	1.175	0.682
Portuguese	.640	0.366
Other EU or non-European	.840	0.700
Constant	.166	0.020
/ln_p	.400	0.000
p	1.493	

1/p	.669
N= 175; *p<0.1; **p<0.05; ***p<0.001	
Source: IGSS 2020.	

7.6.2. The duration of fathers' parental leave: Co-residential parents' leave take-up strategies

Once eligible, parents in Luxembourg inherit an opportunity to take parental leave full-time for six months or part-time for 12 months. As the concerned population in this chapter is parental-leave-eligible parents, all the households can be defined as parental-leave-rich households. However, there are variations in the use of the leave. Depending on parents' parental leave preferences, I created four critical categories of behaviour. Inspired by Diefenbach (2002), I re-defined parents' joint strategies as follows: whether one of the parents takes longer leave than the other, or they take the leave in equal lengths, or none of them takes any parental leave.

As presented in **Table 18** below, in about 70 per cent of the households, mothers take parental leave for a longer duration than fathers do. In a small fraction of the households, only about 5 per cent, fathers' parental leave duration is longer than mothers' leave. In about half of the remaining 25 per cent of the households, both parents take parental leave in equal length, and the rest of the households with no parents take any parental leave despite being eligible for it.

Table 18 Distribution of joint-leave take-up strategies

Leave distribution	Number of couples	%
Leave shared equally	97	12.68
Mothers' leave > fathers' leave	531	69.41
Fathers' leave > mothers' leave	35	4.58
No leave taken in the household	102	13.33

Total	765	100 %
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Source: IGSS 2020.

To better understand the negotiations between joint decision-making for the distribution of parental leave take-up among co-parents, I deployed a multinomial regression, based on the grouping exhibited in **Table 18**. I take the mothers taking longer leave than fathers as the base category. Taking this as the baseline, I compared the factors that play a role in taking a different strategy.

Presented in **Table 19**, the findings suggest that the joint leave take-up decision, and the duration of fathers' parental leave, are multi-layered. The analysis results indicate that the final decisions are not only affected by intra-couple factors but also shaped by extra-household elements. While some of the relative resources, such as skills, appear to have some significance in these decisions when it comes to financial resources, parents' individual resources have a stronger influence than their relative income. The results also show an adversarial relationship between mothers' earnings and fathers' earnings. An increase in mothers' average monthly salaries is associated with greater probabilities of fathers taking leave for the same duration as mothers. In contrast, an increase in fathers' average monthly salary is associated with a negative effect.

It is not only co-parents' relative resources but their individual characteristics and employment background that shape the duration of their leave take-up and how they coalesce their leaves. Although not strongly, this analysis reveals a negative relationship between fathers' individual earnings and their taking leave as long as or even more than the mothers do. In contrast, I observe that the higher the mothers' individual earnings, the higher the chances of fathers' leave take-up at a similar length as mothers and even more.

Although the relative resources literature would suggest a strong(er) role of co-parents' relative resources in forming the leave uptake decisions, the multinomial analysis looking at the duration of fathers' parental leave take-up from a joint-leave take-up perspective gives a different picture. The findings suggest the vitality of individual characteristics as well as the role of the partner. Particularly with respect to earnings and financial resources, it is not the extent to which parents earn in comparison to one another but the sum of their income that defines their capacity to decide the duration of their leave. The adversarial relationship between fathers' and mothers' individual earnings still and the duration of fathers' leave conforms to bargaining power literature.

The findings show that there is a negative relationship between fathers' employment sector and the duration of their leave than mothers. Fathers who work in construction, as opposed to civil servant fathers, seem less likely to take longer leave. In contrast, fathers who work in catering or education have a greater probability of being on parental leave as long as mothers (as opposed to mothers taking longer leaves). I also observe a negative risk association between mothers' employment in catering, trade, and finance and the length of fathers' parental leave. Additionally, I find that having experienced the parental leave reform of 2016 increases the risk ratios of fathers taking longer leave in comparison to the base category. The role of the employment sector and reform suggest the importance of extra-household factors in forming the duration of fathers' parental leave.

Regarding workplace characteristics, the results show that when fathers work at female-dominated workplaces, they are more likely to take leave of the same length as mothers compared to fathers who work at male-dominated workplaces. Additionally, the relative risk ratio to take leave longer than mothers becomes four times larger. While the employment sector does not

seem to have a significant relationship for fathers' longer leaves, there seems to be a significantly positive relationship between working in the finance and service sectors and not taking any leave.

There seems to be a positive relationship between being partners with other European or non-European (not from Portugal or neighbouring countries compared to native Luxembourgers) mothers and increased chances of taking longer leaves. For example, the relative risk ratio for fathers to take leave equally long as mothers is 2.42 times and taking leave longer than mothers is 4.67 times higher when they are partnered with a mother from other European or non-European countries.

There is also a cohort effect. The analysis suggests that with every year, the relative risk ratio for fathers to take a longer leave compared to the base category increases. The relative risk ratio for fathers to be in the category where they take longer leave than mothers is two times higher compared to the base category where mothers take more extended leave than fathers.

Table 19 Relative risk ratios of fathers' leave take-up duration

base: mothers' leave > fathers' leave	Leave shared equally	Fathers' leave > mothers' leave	No leave taken
Fathers' share in the household income	.055***	0.0001***	.297**
Fathers' share in the household income squared	.017**	0.000**	1.11
Relative skills			
Parents have similar skill set	.263**	.461	.826
Mothers have greater skill set	1.02	.547	.839
Workforce composition at fathers' workplace			
Share of female employees	3.59**	4.17	1.72
Share of white-collar employees	1.00	.671	.359**
Share of employees younger than 45	.873	2.02	1.16
Mothers' employment industry			
Base: Public administration, defence			
Agriculture	3.46**		
Construction	2.61		
Trade	.473		
Transportation	.591		
Catering	1.44		
Finance	.957		
Real estate	.926		
Education, health	1.84		
Service	1.20		
Mothers' nationality			
Base: Native Luxembourger			
Neighbouring countries (BE-DE-FR)	1.508	1.81	1.451

	Portuguese	.805	1.82	1.435
	Other European or non-European	2.31**	5.31**	1.92
Year		1.31	2.003**	.710**

N= 745

*p<0.1; **p<0.05; ***p<0.001

Source: IGSS 2020.

Note: controlled for age, nationality, employment sector, employment industry, relative income share, labour force composition of the workplace by, sex and white-collar worker ratio, company size, all separately for fathers and mothers, and year

Note: Constant (_cons) estimates baseline relative risk for each outcome.

7.7. Discussion and conclusion

The distribution of care labour among co-parents and to what extent gender equality is embraced in chosen parenting practices are not always evident to distinguish (Doucet, 2017). To quantify such changes in the re-distribution of tasks or re-allocation of recourses, parents' parental leave take-up patterns of parents appear to be solid indicators. As the transition from a two-adult household to a two-parent-and-a-child household increases the responsibility loads, the extent of the new responsibilities carried out by each parent depends on the couple's own capabilities as well as the external factors contributing to individuals' capacity and resource set, such as their time, earnings, and skills. Parental leave policies aim to protect parents' existing resources in meeting the needs of their new responsibilities and reallocating their time and resources.

In this study, I continued exploring first-time fathers' parental leave trajectories by dissecting their leave time and duration decisions. In doing so, I focused on intra-household negotiations and drew on relative resources-bargaining power theories.

Exploiting an entire parental leave coverage period for 766 first-time fathers and their partners in co-residential households in Luxembourg, the findings showed that the first year of a child's life remains a maternal territory. Bargaining power plays an important role, particularly when mothers' have relatively higher resources than fathers. Mothers' greater resources push fathers to start their leave earlier.

The results also indicate that these decisions are not only influenced by parents' characteristics. Mothers' workplace characteristics have a say in fathers' decision-making. This suggests and confirms the multidimensionality of these decisions and points out the importance of extra-

household factors. It becomes another supporting evidence for the embedded gender structures across multi-level interactions (Risman, 2004; Sullivan, 2006). In short, parental leave decision is not a private family matter and cannot be completely understood without accounting for the role of workplaces. This finding becomes another supporting evidence to the parental leave literature suggesting that workplaces mediate the effectiveness of parental leave policies see, for example, Gregory and Milner (2011); Kaufman and Almqvist (2017); Mun and Jung (2018).

This chapter contributes to the growing body of research looking at the intersection of parental leave policies and fathers' behaviours. One of the novelties of this study is the concurrent use of couple characteristics in explaining the mechanisms behind the timing and duration of fathers' parental leave take-up, which is rarely examined with administrative data. Having access to each parent's workplace characteristics in such detail enabled the scrutinisation of meso-level elements and their effects on parents' decision-making. Another contribution is the use of multiple dimensions when defining relative resources. Including skills and time availability of parents to their economic resources expanded the conceptualisation of relative resources. The multidimensional approach showed that in all these three categories when fathers have greater resources than mothers, they start their leave later. Although this association disappeared in the decisions for the leave duration, it still threw new information on the first phase of fathers' parental leave take-up decisions.

The duration analysis revealed a conflicting relationship between fathers' individual earnings and the duration of their leave and a positive correlation between mothers' individual earnings and the duration of fathers' leave. In other words, I observed a competing relationship between fathers' and mothers' individual earning capacities in shaping fathers' parental leave duration. An increase in fathers' average salary encourages them to take

shorter leaves, whereas an increase in mothers' average salary has the opposite effect and convinces fathers to take longer leaves. The weak or disappearing effect of relative resources (when put in complex regression models) and the greater power of individual resources is not entirely surprising. These findings are parallel with (2007) findings, as well as Esping-Andersen and Schmitt (2019) discussions, suggesting that parents' economic autonomy is a more significant determinant in the negotiations of domestic responsibilities. This finding also supports the take on parents being two separate units and acting selfishly in Becker (1962)'s terms, at the expense of a growing earnings gap within the couple, rather than family being one single unit in decision-making and resource allocation. In other words, a gendered pattern in the division of labour remains. This finding also accounts for the importance of absolute earnings as an element of decision-making for the duration of parental leave. The total earnings entering the household appear to be a more vital determinant than parents' relative earnings to each other. This relates to the cost of being on leave and affordability concerns that the parental leave literature repeatedly discusses. In short, this finding suggests that families decide their potential income loss in absolute terms.

The results also show a variation in the factors that shape the decisions and the direction and magnitude of the effects. This became particularly visible in the parents' employment sectors. The varying and significant effect of the employment sector indicates the role of extra-household factors for fathers to decide how long to take leave. Similarly, workplace culture, proxied with the workforce composition, appears to be a vital element. By finding that mothers' earnings and workplace characteristics are crucial in navigating intra-couple negotiations, this study becomes new evidence from Luxembourg confirming the existing studies in the literature.

Although working with the pre-2016 reform data, this study complements the previous chapters by providing further details on fathers' parental leave

decisions. Hence, this study should be a baseline for further elaborating on fathers' parental leave trajectories in Luxembourg. Differently from many existing studies, this body of work sheds light on the details of fathers' decision-making for the specifications of parental leave by closely analysing the timing and duration of their leave. However, the narrative is aligned with the existing evidence from the literature drawn from studies with larger sample sizes; the findings should be tempered by its limitations. The sample only consisted of parental leave eligible, or parental leave rich, households, which differ from the rest of the population. This group, by definition, have greater access to resources through both parents' employment and eligibility for parental leave. As the sample was restricted by a three-year window (parents of children born between 2009 and 2013), the number of fathers who took longer parental leave compared to mothers was also small. This study should be replicated in the future for the post-2016 reform period when the entire observation period becomes available.

Chapter 8: Conclusion

From access to negotiation: First-time fathers' parental leave take-up experiences in Luxembourg

8.1. An overview of the thesis

This thesis focused on first-time fathers and scrutinised their parental leave trajectories in three phases: access to leave, take-up of leave, and negotiations surrounding leave. To achieve this goal, the thesis benefitted from Luxembourg's social security register data (IGSS data) and focused on the period covering before and after the 2016 parental leave reform. In consideration of the multidimensional nature of the parental leave policy, this thesis also examined first-time fathers' parental leave behaviours through the lens of meso- and micro-level factors.

Luxembourg's parental leave was designed to be a gender-neutral policy following gender-based maternity leave provision. Notably, it is contingent upon employment and social security contributions, so each parent is subject to the same eligibility criteria and once eligible, has the same amount of leave. There is also a 'use-it-or-lose-it' element in the design, where one of the parents is required to take leave immediately after maternity leave, otherwise both parents lose their eligibility. However, after one of the parents takes leave immediately following their maternity leave, the other parent gains access to parental leave with greater flexibility: For instance, they could start their leave before the child turns age five or six, depending on whether this falls within the period before or after the 2016 reform. Often, it is mothers who take the first parental leave, so fathers have more flexibility in their initiation of parental leave.

There were several questions that I wished to answer with this thesis. The first was about the gender-neutral design of Luxembourg's parental leave policy. In exploring fathers' parental leave trajectories and analysing what makes them more inclined to take this leave, I was curious whether gender-neutrality is fulfilling its mission in terms of equal divisions of labour, as intended. Second, I was interested in the entire trajectory of parental leave, that is, who has access, what happened with the reform, what the reform improved upon, in which areas the reform failed, etc. Additionally, I was interested in the role of extra- and intra-household factors not only in the take-up decision but also in the decisions surrounding the timing and duration of leave. Therefore, I used fathers' and mothers' workplace characteristics as extra-household measures and mothers' individual characteristics and relative resources in the household as intra-household measures.

The three studies analysing the case of Luxembourg have a specific sequence. Across the three studies, a recurring theme that I noticed was the interactional nature of gender and how it is continuously re-invented in a multidimensional sphere. However, the formation of decisions based on gender ideologies may not necessarily occur explicitly (Twamley, 2021; Twamley & Schober, 2019). For instance, parents' resources may align or conflict with their perceived gender practices of care provision and parental leave take-up. They may also take a position in accordance with or despite what they inherently believe. These decisions arise in plurality in the form of embedded interactions (Sullivan, 2006). They are also influenced by external factors and cannot be isolated from the gendered nature of the workplace and social environment in which they occur (Giddens, 1976; Haas & Hwang, 2019b; Kvande, 2002; Sullivan, 2006; Swell, 1992). This situation, when parental leave take-up behaviours and negotiations were considered, was no different for first-time fathers in Luxembourg.

These parents are also likely to find themselves in negotiations with their managers, co-workers, or employers to a greater degree. Especially in households where both parents are employed, their negotiations as co-parents cannot be isolated from their negotiations with their respective employers. Hence, despite parental leave being designed as an individual statutory entitlement, the final decision is not up to the individual alone. That is, the decisions surrounding parental leave materialise in a multi-level sphere, and the empirical analyses in the three studies of this thesis support this statement. Moreover, although the research questions posed were different, as were the chosen methods, the findings conveyed a similar message: Parental leave is not a simple decision; it is made under the influence of multiple factors and interactions among different actors.

To begin with, the three studies showed that the changes in eligibility criteria regarding the number of working hours do not have a meaningful influence for first-time fathers. This was because of the low number of fathers working in marginal part-time employment prior to the reform. That is, most fathers were already working full-time jobs prior to the reform; hence, the expansion in eligibility criteria is more symbolic for them. The new capability set also resonated more strongly with mothers, as they are more likely to be in the new target group.

The findings in this study, albeit descriptive, highlighted the differences in employment behaviours and preferences between mothers and fathers. Moreover, the differences were not only gendered but also involved an element of nationality. This indicates the need for an intersectional approach to examining and understanding Luxembourg's parental leave policy.

This nationality-related variation is also consistent with the general structure of the country, as some earlier studies have indicated different tendencies in sectoral segregation among groups of different nationalities in Luxembourg; see, for example, Gutfleisch (2022); Hildebrand et al. (2017); Jardak and

Ayerst (2022). However, once the eligibility barrier is overcome, native and non-native Luxembourgish fathers' leave take-up behaviours are similar. This suggests that the initial eligibility impediment found in the current design of Luxembourg's parental leave policy has failed to include all working parents. Furthermore, since Luxembourg has a complex population structure, there seems to be a need for more inclusive policy interventions to expand the reach of the positive impact that the parental leave reform has had.

However, the reform contains other elements that have shifted fathers' leave take-up behaviours. Conceptually, the take-up of leave corresponds to an activated agency (Sen, 1985b). Specifically, the use of leave indicates that eligibility has materialised, the ownership of this statutory entitlement is embraced, and the parent's capability set is being exercised. Similar to what the numerous studies included in the literature review showed (see Chapter 2: Conceptual and Empirical Background), I found that this opportunity activation is embedded in greater social structures and cultural landscapes. The final decisions also seem to be heavily influenced by the existing patterns of workplaces, as well as individual characteristics. However, the upward shift in first-time fathers' parental leave take-up also indicates that a macro-level policy change can sometimes trigger behavioural changes in the least expected of environments.

Predominantly driven by the increased leave compensation component, the reform led to an approximately 20 per cent increase in first-time fathers' leave take-up. At a more granular level, however, the change appeared to be more significant among fathers who work in smaller companies and those in the mid- to low-income quintiles. The change was also more pronounced in households where mothers have greater financial resources compared to fathers. Therefore, the reform enhanced the capabilities of fathers who traditionally tend to be more disadvantaged due to their low earning power.

Similarly, the change was also more pronounced in households where mothers had more financial power than fathers.

The literature also suggests that it is more difficult for small workplaces to replace absent labourers and maintain their workflow while employers are on parental leave. However, the evidence here suggests the opposite, and this finding is driven by the improved affordability of leave. That is, the increased leave compensation has overcome the income loss for this group of fathers, and as their earning capacity stabilises and income loss is prevented, their take-up behaviours shift. Financial empowerment has, therefore, encouraged behavioural changes, which, in turn, have re-set organisational practices. This finding supports what Acker (1990) argues in gendered organisation theory: Organisations mirror individuals' behaviours.

This finding also supports duality in the development of these behaviours as both input and the results of their environment (Giddens, 1976; Swell, 1992). This pattern is further mediated by the fact that there is top-down intervention enabling a bottom-up shift in individuals' behaviours, despite there being no structural changes in the actual workplace. Moreover, greater changes occurring in smaller workplaces can suggest an equilibrium to be achieved, irrespective of the size of the workplace. That is, larger workplaces are already performing better in terms of fathers' parental leave take-up. However, this should not be understood as there having been no change. Indeed, for the larger workplaces, the change was around 18 per cent (in comparison to 27 per cent in smaller workplaces), proving that there certainly was an upward shift for larger organisations too.

There are several implications of the findings in terms of the initiation and duration of leave. Therefore, in the third study, I aimed to answer the following questions: When do fathers start their parental leave? For how long are they on parental leave, and what roles do intra- and extra-household factors play in these decisions? Notably, these questions entail the

presumption that these fathers are already eligible for parental leave and are already leave takers. That is, they are already claiming their leave entitlement, exercising their parental leave rights, and utilising their capabilities. This also suggests that they are more prone to having gender egalitarian ideals, as they display active agency in fulfilling their parenting responsibilities. Further, this signals a readiness for a cultural shift in gender structures in the traditionally gendered culture of Luxembourg. There is also an association between the macro-level policy developments of the past two decades since the turn of the millennium (discussed in Chapters 1 and 2) and individual behavioural changes toward more gender equality.

As found in the second study (Chapter 6), the elements of financial constraints and workplace characteristics dominate the shaping of fathers' parental leave behaviours. Specifically, the analyses indicated the role of power dynamics and suggested a rivalry between fathers' and mothers' resources. For instance, fathers tend to postpone the start of their parental leave when they have greater financial resources, work for longer hours, and have longer work experience compared to mothers. This can also be interpreted as the family being a unit facing a trade-off between the sum of income entering the household, the potential amount to be lost during leave, and the fulfilment of the responsibilities related to direct care provision as parents. Further analysis of what affects the decision of leave timing revealed that it is influenced by the father's nationality, the father's employment sector, the mother's nationality, and the mother's employment sector. These intra-household negotiations are, therefore, shaped by both extra-household factors and internal processes.

The third study (Chapter 7) confirmed that overall parental leave take-up behaviours continue to be gendered. Specifically, during the pre-reform period, for about 70 per cent of couples in the analysis, mothers were taking longer leave compared to fathers, and in about 13 per cent of couples, fathers

were taking longer leave than mothers. Notably, the duration of leave in this analysis was calculated as an indicator of care intensity, and it revealed that parents' individual resources play a more substantial role in their leave duration than their respective resources. This suggests the vitality of the absolute capacity of the family or, in other words, that the resources in the household should be treated as the sum of two parents' individual capability sets and not only as a unified sum. As mentioned, the decision about leave duration is beyond the father's individual, employment, and workplace characteristics; it is also shaped by the mother's nationality, employment sector, and salary.

The analysis of first-time fathers' parental leave trajectories exhibited the importance of gender structures and how they are interwoven across different levels. The workplaces, not only directly but also indirectly through their partners' workplaces, kept appearing as significant factors contributing to decisions about leave take-up, timing, and duration. Financial concerns and power dynamics among partners were also significant factors in these decisions. Additionally, gendered behaviours tend to be altered only when mothers have more substantial decision-making power in the household and only when a supportive workplace culture is present. When only one of these factors is present, progress is slowed. Therefore, following Sullivan et al. (2018) and Doucet and Duvander (2022), first-time fathers' parental leave take-up trajectories in Luxembourg and respective developments in gender equality can be viewed as a 'slow drip,' where the change is uneven but occurs gradually and incrementally.

8.2. Contributions

The novel findings of this thesis and its contributions to the development of parental leave literature are numerous: First, the thesis benefits from its use of social security records with the specific variables of eligibility and parental

leave take-up. Specifically, since the fathers' data were linked to that of their partners, including their workplace characteristics, an advanced level of granularity could be achieved. Second, this is the first study to analyse the short-term impact of the 2016 parental leave reform in Luxembourg. Therefore, this thesis brings novel evidence to a growing stream of literature in an understudied country. Third, conceptually, the thesis takes parental leave as a right to be claimed and traces this opportunity in practice through multi-level interactions across parties. Additionally, by building on different phases of parental leave, examining the details of parental leave take-up negotiations, and immersing gendered organisations and gender structure theories into these studies, this thesis enhances its empirical basis.

8.3. Policy implications

Luxembourg's parental leave regime already achieves the gold standard of parental leave policies by increasing fathers' leave take-up. It is also an individual opportunity, it is paid, and it offers flexibility. However, in parallel with the exhaustive evidence provided throughout this thesis, a generous policy does not guarantee a generous take-up. As mentioned earlier, the starting point is making eligibility criteria more inclusive. Following this stage, workplaces need to adhere to parental leave regulations. The 2016 reform increased the take-up of leave, but the change was most apparent in the least expected of places: smaller companies. The change was also most significant among mid- and low-income fathers who did not experience any loss of income due to taking leave, making the most drastic shift here. However, how sustainable this increase will be will only be known once a longer observation period becomes available.

Throughout the three studies of this thesis, the findings converged on a similar point: Without the support of workplaces, it is difficult to change the norms at the individual level. As discussed in earlier chapters, there is a bidirectional

relationship between the construction of gender and the (re)production of norms. That is, this enhanced, more generous statutory right increases fathers' desire and motivations to take leave, which can be interpreted as an upward shift toward more gender-equal tendencies at workplaces. However, for this change to become the new norm, workplaces should appreciate the benefits that they can obtain from it, which can emphasise the flexible modalities of parental leave. Notably, the flexible use of leave requires closer engagement with other policies, such as childcare service provision. Hence, more holistically integrated, publicly provided early-year child support can be devised as an additional policy step. In this way, there would be no gap between parental care and formal preschool, so parents would not need to interrupt their labour market engagement but can continue contributing to the workforce and maintaining their productivity while caring for their children.

From access to leave to its use, an issue arose throughout this thesis: parents' nationality. Luxembourg has a unique population dynamic, with half of the population being non-native Luxembourgers. This cultural richness also brings cultural variation in people's existing behaviours and ways of adapting to and embracing the benefits, services, and opportunities with which they are presented. However, when there are eligibility criteria in place, the development of the ownership of such statutory entitlements and the exercising of those rights may not be a straightforward process. That is, they may not be eligible to claim these benefits, as was the case for parental leave.

The analysis of parental leave eligibility showed a gap between native Luxembourgish parents' and other European or non-European parents' access to parental leave. In the further analysis of the take-up and negotiations surrounding the timing and duration of leave, parents from an immigrant background actually appeared keener to take their parental leave opportunity. However, the gap in initial access shows that leave take-up behaviours are often the result of self-selection. That is, those who succeeded to fulfil the

eligibility criteria may have already been in a better position to do so in comparison to their fellow natives who failed to meet the eligibility criteria. This relates in particular to employment statuses and the requirement of a minimum of 12 months of uninterrupted social security contributions prior to the start of leave. Since parents in non-standard employment and those who arrived in Luxembourg more recently are more likely to be immigrant parents, an update in eligibility criteria to make them more inclusive of alternative employment forms would likely eradicate the access gap between native Luxembourgish and immigrant fathers.

In summary, there seems to be a need for a deeper exploration of the non-native Luxembourgish parents' parenting leave experiences in Luxembourg. Specifically, the reasons behind their ineligibility and the difficulties that they face can be used to develop new policy solutions. Once these response mechanisms are mapped, a more inclusive policy intervention capturing the specific needs that arise with these cases can then be enacted. This intervention can occur as follows: i) Entry into and retention in the labour force should be addressed, and ii) if there is resistance to increasing parents' engagement in the labour force, a branching out from parental leave with community-strengthening interventions can be considered to mobilise parents' engagement in their provision of care to their young children.

Throughout this thesis, workplace and employment characteristics were examined according to the size of the workplace, the composition of the workforce, or the sector of employment. In addition to these, a significant body of parental leave literature has consistently argued and provided evidence for workplace culture and managerial and collegial attitudes' impact on parental leave take-up decisions. While not examining these elements but only using proxies for them here, the evidence from this thesis should be taken as further evidence for the significance of workplaces in mediating parental leave take-up behaviours. However, the question of how to encourage

workplaces to move from enablers of parental leave to promoters thereof remains to be answered.

8.4. Limitations and recommendations for future research

In this thesis, I had the opportunity of being granted access to social security register data to explore the impact of the recent parental leave policy reform. The IGSS data had various features that enabled me to conduct analyses across the chapters of this thesis, as well as the opportunity to use fathers' and mothers' information simultaneously. This data combination is uncommon in parental leave quantitative analysis (Bia et al., 2021). The richness of the data was also displayed and captured from different angles across the chapters. However, there were also some limitations that prevented the analyses from providing even more in-depth evidence about the entire leave period.

One limitation relates to the observation period. The reform was enacted on December 1st, 2016. The full parental leave period, potentially, is until the child turns age six. Hence, for the first cohort of children who were born after the reform, the full period has not yet been completed. That is, by the time of the writing of this thesis in 2022, the six-year window is ongoing, and the period of the available dataset for this thesis ended in December 2018. With the analytical goals and sample size concerns, the entire post-reform observation window was also set to 18 months after childbirth. Overall, the analyses (except the survival analysis for the timing of leave calculations in the third study, focusing on the pre-reform period in Chapter 7) addressed the short-term impact of and fathers' short-term response to the reform. On this basis, the findings from these chapters should be taken as foundational and, when more data become available, should be replicated for the entire leave period.

The analyses in this thesis solely focused on first-time fathers and their partners, with those parents with multiple children being excluded from the

analyses. With Luxembourg's low birth rate (1.34), this selection does not appear to be too problematic. However, it still resulted in the exclusion of parents with multiple children, a choice driven by the data. In the dataset, it was not possible to link parental leave and the child to one another. That is, in the case of multiple children, one could not always discern which leave period was taken for which child. For clarity reasons, there had to be a selection, so all analyses were set to work with parents with only one child, with the assumption that they were the first child.

Another limitation concerns employment status. The analyses across the chapters focused on salaried, employed first-time fathers and their partners co-residing in Luxembourg, so self-employed and cross-border workers were excluded from the analyses. Specifically, self-employed fathers were excluded because they tend to have different behavioural preferences in relation to their self-managed work time. Second, in the data, the variable of the number of working hours was reported by employers, meaning that there was no consistency in the information on the number of working hours of self-employed parents. They could have been included in a separate analysis, but this was beyond the scope of this thesis.

Similarly, cross-border workers were excluded from the analyses. This decision was again related to the availability of data. The conceptual approach of this thesis required using co-parents' data simultaneously and utilising partners' employment and work characteristics in explaining fathers' parental leave take-up behaviours. However, these data were only available if the partner was registered in Luxembourg's social security system, so if the partner was not employed in Luxembourg, their employment and workplace information was missing from the data.

As mentioned, the qualitative aspects of workplaces are considered important factors in shaping parents', and especially fathers', parental leave take-up behaviours. Although the IGSS data were extremely rich and meticulous, data

on workplace behaviours and attitudes were lacking. Therefore, a follow-up study based on a mixed-methods survey and interview approach is needed to measure the role of workplace culture and the influence of collegial and managerial attitudes in explaining the take-up gaps among different groups of fathers.

Finally, there is the community element that was missing in this thesis. Due to the complexity and cultural richness of Luxembourg, this gap suggests that there is an opportunity for future research to focus more on the community. Ideally, this can involve a qualitative survey of local communities, especially in immigrant-intensive areas, and their childcare practices. The community constitutes an important set of resources, and the existence or absence thereof may influence working parents' navigation between work and childcare responsibilities. The lack of community resources would especially become more pronounced among parents from immigrant backgrounds, those who moved into the country recently, and those who could already afford to take leave. Future studies can, therefore, focus on the role of Luxembourg's diverse communities by collecting new data and generating new evidence.

8.5. Final comments

Irrespective of the research questions, methodological design, and definition of the analytical sample, the various analyses in this thesis show that parental leave take-up is a complex, multifaceted decision. Although it is defined as an individual entitlement at none of its stages from planning to actual take-up does it operate as an individual act; rather, it acts as a social process – it always involves multiple players from different levels. In addition, the focus of this thesis was first-time fathers, but as I have shown, their parental leave take-up decisions occur under a complex constellation that includes their partners' workplace characteristics.

The gender-neutral design of the parental leave policy in Luxembourg gives equal opportunities to both mothers and fathers. In legislative terms, there is no distinction between the eligibility requirements defining access to parental leave, compensation for leave, or the form of leave to be taken. However, being granted the same opportunity does not mean that the same take-up behaviour outcomes will occur. Here, a gendered trend in parental leave take-up preferences was observed. This aligns with long-documented gendered divisions in care labour and mothers being appointed as primary caregivers and, hence, being the primary users of parental leave. Further, although leave take-up practices can differ, the preferences related thereto evolve in constant interaction with the external environment to which parents are exposed. This external environment, also referred to as the meso-level ecosystem, is constituted by the workplaces and communities in which parents are engaged. The complexity of these embedded interactions, as Sullivan (2006) determines, involves the multi-actor nature of these meso-spheres. This is because workplaces involve a variety of players from managers to co-workers, as well as company culture, identities, and organisational logic (Acker, 1990; Bates, 2021). This multi-player nature of workplaces indicates an explicit or implicit interaction between the formal legislations that macro-level policy offers and the institutional environment and informal practices of the workplace level (Bjarnegård & Kenny, 2016).

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Appendix – Chapter 6

Control and Treatment Group Characteristics

Table 20 Pre-reform (control) and post-reform (treatment) sample characteristics

	Pre-reform		Post-reform	
	N	per cent	N	per cent
Nationality				
Native Luxembourg	193	50.92	346	49.86
Neighbouring countries (Belgian/French/German)	48	12.66	92	13.26
Portuguese	79	20.84	136	19.60
Other European or non-European	59	15.57	120	17.29
Sector				
Public	60	15.83	132	19.02
Private	319	84.17	562	80.98
Independent (self-employed)	n/a			
Not working	n/a			
Weekly working hours				
Marginal part-time or part-time	19	5.01	47	6.77
Full-time	360	95.99	647	93.23
Self-employed	n/a			
Not working	n/a			
Average hourly salary quartiles				
Q1	90	23.75	125	18.06
Q2	78	20.58	136	19.65
Q3	72	19.00	142	20.52
Q4	76	20.05	138	19.94
Q5	63	16.62	151	21.82
Sector				
Agriculture	34	9.07	42	6.19
Construction	52	13.87	84	12.37
Trade	41	10.93	74	10.90
Transportation	44	11.73	97	14.29
Catering	25	6.67	29	4.27
Finance	49	13.07	81	11.93
Real estate	37	9.87	77	11.34

Public administration & defence	70	18.67	155	22.83
Education/health Service	13	3.47	33	4.86
	10	2.67	7	1.03
Company size				
Small (<50)	124	32.98	197	28.89
Medium (50–250)	84	22.34	138	20.23
Large (250+)	168	44.68	347	50.88
Work experience				
<5 years	96	25.33	213	30.69
5–10 years	122	32.19	217	31.27
11+	161	42.48	264	38.04
Female employees				
0–59 per cent	342	90.96	627	91.94
60–100 per cent	34	9.04	55	8.06
White-collar				
0–59 per cent	160	42.55	218	31.96
60–100 per cent	216	57.45	464	68.04
45 y. o. rate				
0–59 per cent	77	20.48	168	24.63
60–100 per cent	299	79.52	514	75.37
Mothers' Nationality				
Native Luxembourg	171	45.12	329	47.41
Neighbouring countries (Belgian/French/German)	49	12.93	85	12.25
Portuguese	79	20.84	110	15.85
Other European or non-European	80	21.11	170	24.50
Mothers' Employment Sector				
Public	37	9.76	82	11.82
Private	253	66.75	451	64.99
Independent (self-employed)	9	2.37	35	5.04
Not working	80	21.11	126	18.16
Mothers' Weekly working hours				
Marginal part-time or part-time	47	12.40	71	10.25
Full-time	243	64.12	461	66.52
Self-employed	9	2.37	35	5.05
Not working	80	21.11	126	18.18

Table 21 Average treatment effect on the treated by different matching algorithms across different workplaces

	All eligible fathers			Fathers in large companies (250+)			Fathers in medium-size companies (50–250)			Fathers in small companies (<50)		
	ATT	SE	T-stat	ATT	SE	T-stat	ATT	SE	T-stat	ATT	SE	T-stat
Treatment (1 vs 0)												
Kernel matching with Calliper 0.01	.198	.0271	7.32	.1651	.0431	3.83	.1728	.0800	2.16	.258	.056	4.56
Kernel matching with Calliper 0.002	.202	.0281	7.19	.1885	.0460	4.09	.1990	.0817	2.43	.271	.060	4.50
Nearest neighbour with replacement without calliper	.211	.0312	6.76	.1871	.049	3.78	.2116	.0942	2.24	.268	.061	4.32
1-to-1 match with 10 NN	.200	.0273	7.33	.1663	.0415	4.01	.1854	.0657	2.82	.259	.051	5.06
Mahalanobis metric matching without propensity score	.193	.0324	5.97	.1473	.0464	3.18	.1459	.0749	1.95	.262	.052	5.05
Mahalanobis metric matching with propensity score	.187	.0318	5.89	.1608	.0457	3.52	.1240	.0773	1.60	.257	.051	5.04

Inverse probability weights	.2034		.1764	.271
N	1052	510	221	317

Source: IGSS 2020.

Table 22 The effect of the reform on fathers' parental leave take-up. Average treatment on the treated by different matching algorithms and across wage quintiles

Treatment (1 vs 0)	Q5			Q4			Q3			Q2			Q1		
	ATT	SE	T- stat	ATT	SE	T- stat	ATT	SE	T- stat	ATT	SE	T- stat	ATT	SE	T- stat
Kernel matching with Calliper 0.01	.0929	.0570	1.63	.1886	.0863	2.19	.2720	.0890	3.05	.2309	.0638	3.62	.2276	.0861	2.64
Kernel matching with Calliper 0.002	.0870	.0600	1.45	.1999	.0932	2.14	.2729	.0943	2.89	.2516	.0666	3.77	.2781	.0908	3.06
Nearest neighbour with replacement without calliper	.0845	.0674	1.25	.2014	.0971	2.07	.2794	.0827	3.38	.25	.0658	3.80	.2773	.0906	3.06
1-to-1 match with 10 NN	.1176	.0536	2.19	.1970	.0723	2.72	.2713	.0752	3.61	.1945	.0604	3.22	.2201	.0773	2.85
Mahalanobis metric matching without propensity score	.1564	.0592	2.64	.1970	.0697	2.83	.2014	.0769	2.62	.2222	.0615	3.61	.2352	.0762	3.09

Mahalanobis metric	.1478	.0601	2.46	.1567	.0743	2.11	.1985	.0777	2.55	.2343	.0611	3.83	.2436	.0782	3.11
matching with propensity score															
N	203		213				208				202				207

Source: IGSS 2020.

Table 23 The effect of the reform on fathers' parental leave take-up. Average treatment on the treated by different matching algorithms and across relative financial resources

	Financial resources					
	Mothers' financial resources > fathers' financial resources			Fathers' financial resources > mothers' financial resources		
Treatment (1 vs 0)	ATT	SE	T-stat	ATT	SE	T-stat
Kernel matching with Calliper 0.01	.2178	.0471	4.98	.1710	.0333	5.12
Kernel matching with Calliper 0.002	.1985	.0536	3.70	.1714	.0346	4.94
Nearest neighbour with replacement without calliper	.1875	.0558	3.19	.1871	.037	5.06
1-to-1 match with 10 NN	.2243	.0459	4.88	.1701	.0331	5.14
Mahalanobis metric matching without propensity score	.2218	.055	4.03	.1504	.0379	3.97
Mahalanobis metric matching with propensity score	.2156	.057	3.78	.1508	.0383	3.94
N		496			555	

Table 24 The effect of the reform on fathers' parental leave take-up. Average treatment on the treated by different matching algorithms and across relative skill resources

	Skill resources								
	Mothers and fathers have similar skill resources			Mothers' skill resources > fathers' skill resources			Fathers' skill resources > mothers' skill resources		
Treatment (1 vs 0)	ATT	SE	T-stat	ATT	SE	T-stat	ATT	SE	T-stat
Kernel matching with Calliper 0.01	.1420	.1315	0.75	.1641	.0667	2.72	.2236	.0338	6.60
Kernel matching with Calliper 0.002	.1054	.1173	0.90	.1864	.9731	2.55	.2178	.0365	5.96
Nearest neighbour replacement without calliper	.1111	.1242	0.89	.1855	.0727	2.55	.1968	.0411	4.78
1-to-1 match with 10 NN	.0458	.0930	0.49	.1158	.0608	1.90	.2202	.0336	6.54
Mahalanobis metric matching without propensity score	.2195	.0971	2.26	.0904	.0662	1.37	.2154	.0376	5.72
Mahalanobis metric matching with propensity score	.1666	.1137	1.47	.0859	.0657	1.31	.1968	.0385	5.11
N	122			328			604		

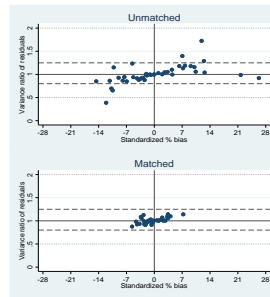
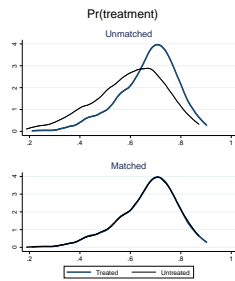
Table 25 The effect of the reform on fathers' parental leave take-up. Average treatment on the treated by different matching algorithms and across relative time resources

Treatment (1 vs 0)	Time resources					
	Mothers and fathers have similar time resources			Fathers work for longer hours		
	ATT	SE	T-stat	ATT	SE	T-stat
Kernel matching with Calliper 0.01	.2086	.0356	5.85	.1395	.0501	2.78
Kernel matching with Calliper 0.002	.2038	.039	5.23	.1749	.0562	3.11
Nearest neighbour with replacement without calliper	.2064	.0435	4.74	.1832	.0506	3.62
1-to-1 match with 10 NN	.2074	.0359	5.77	.1403	.0476	2.94
Mahalanobis metric matching without propensity score	.2296	.0422	5.43	.0984	.0563	1.75
Mahalanobis metric matching with propensity score	.2227	.0416	5.35	.0994	.0575	1.73
N		659			316	

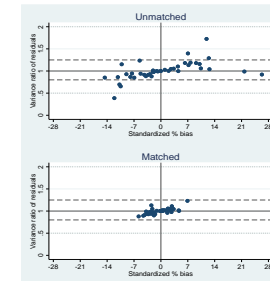
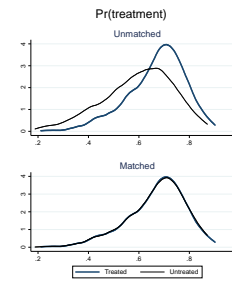
Balance tests

Table 26 Matching with different algorithms

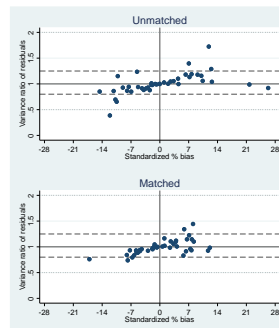
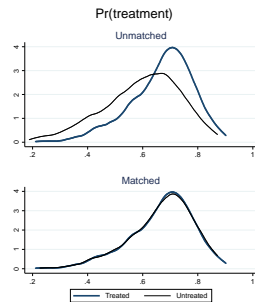
Kernel matching with calliper 0.01



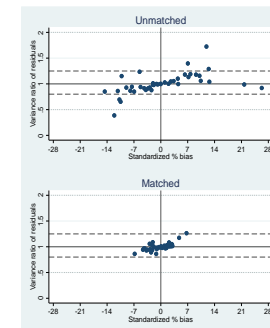
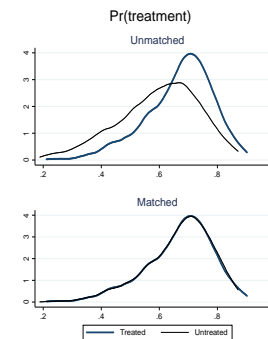
Kernel matching with calliper 0.002



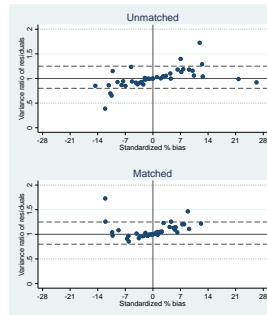
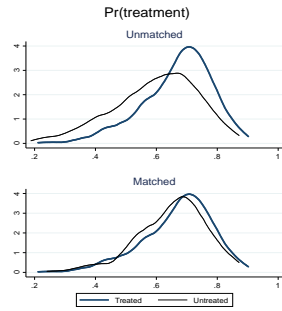
Nearest neighbour with replacement without calliper



1-to-1 Matching with 10 NN



Mahalanobis metric matching without propensity score



Mahalanobis metric matching with propensity score

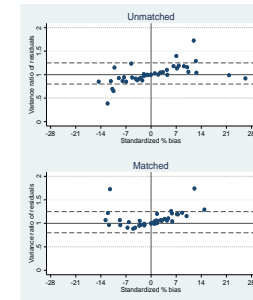
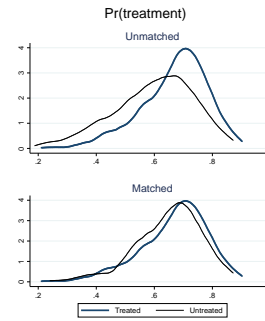
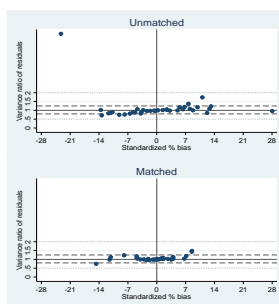
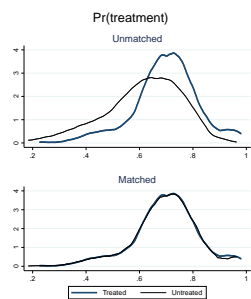
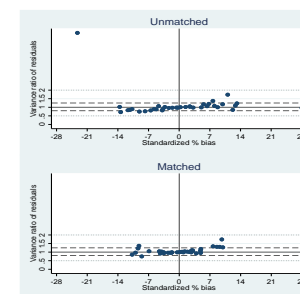
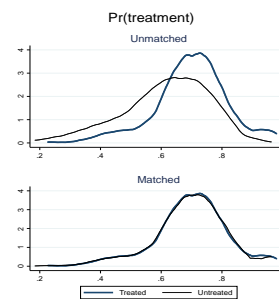


Table 27 Matching with different algorithms: Workplace heterogeneity – large-sized companies

Kernel matching with calliper 0.01

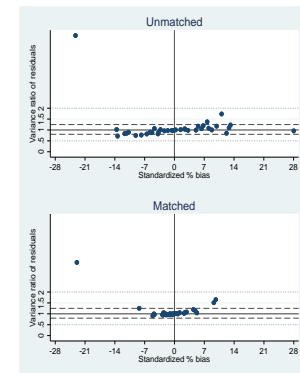
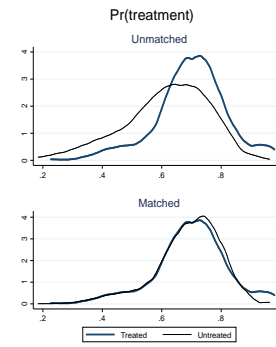
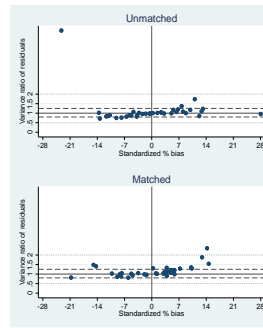
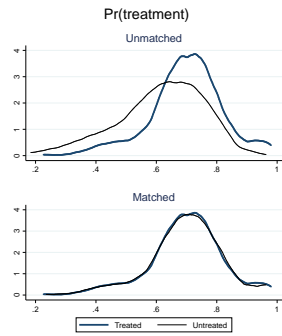


Kernel matching with calliper 0.002



Nearest neighbour with replacement without calliper

1-to-1 Matching with 10 NN



Mahalanobis metric matching without propensity score

Mahalanobis metric matching with propensity score

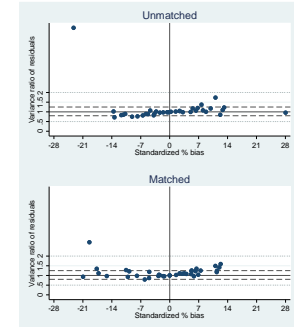
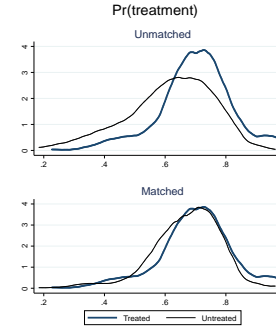
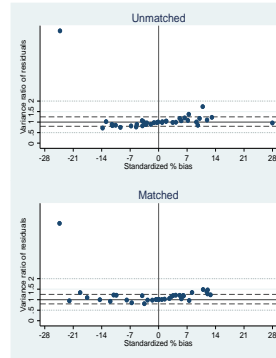
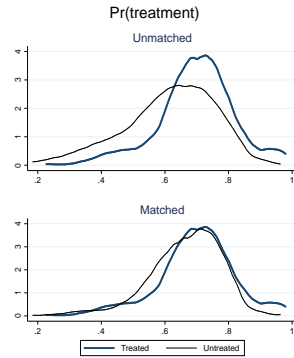
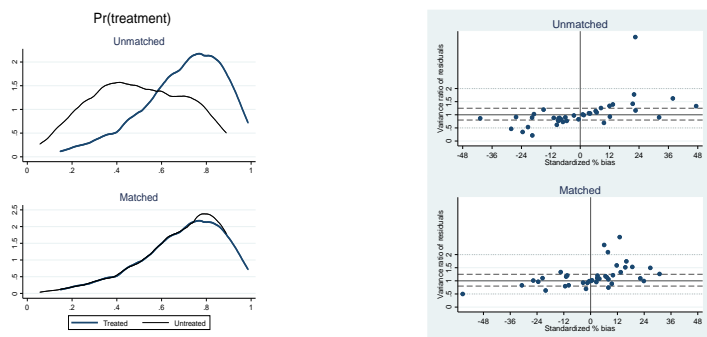
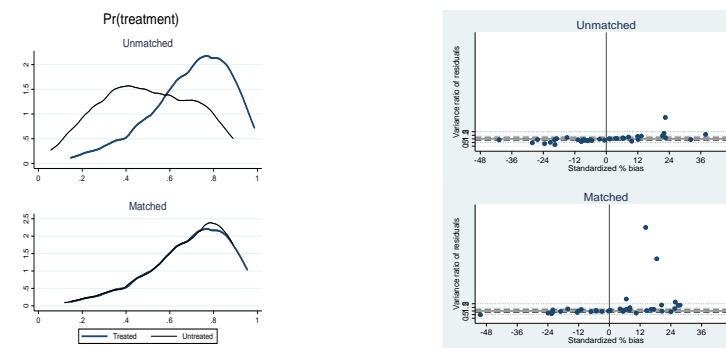


Table 28 Matching with different algorithms: Workplace heterogeneity – medium-sized companies

Kernel matching with calliper 0.01

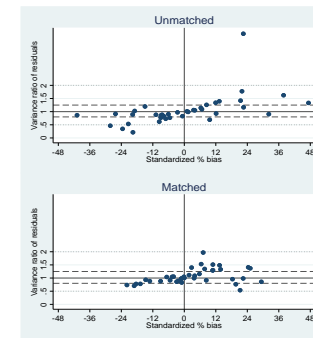
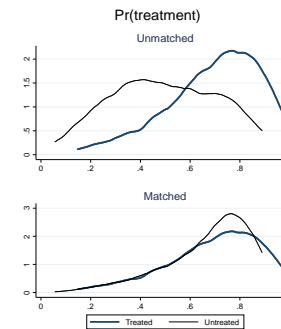
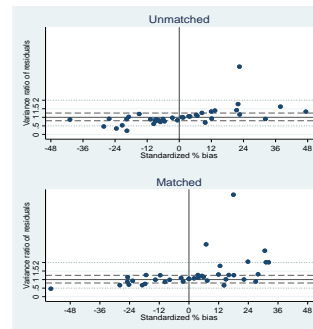
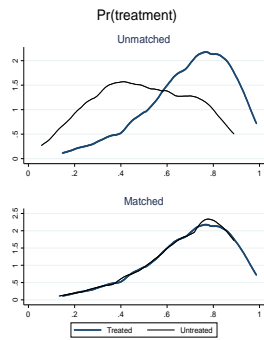


Kernel matching with calliper 0.002

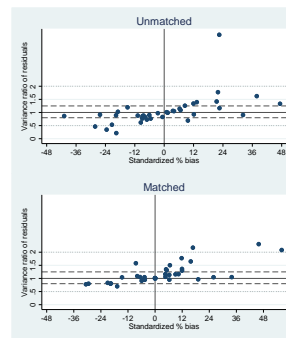
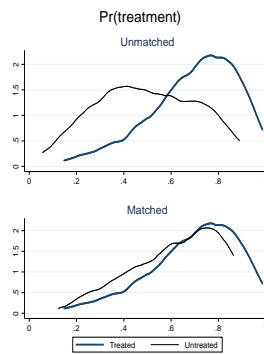


Nearest neighbour with replacement without calliper

1-to-1 Matching with 10 NN



Mahalanobis metric matching without propensity score



Mahalanobis metric matching with propensity score

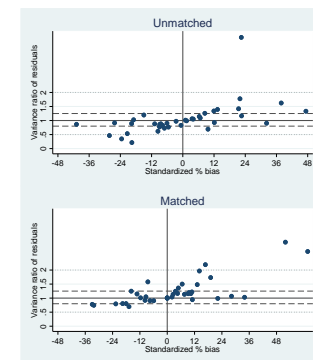
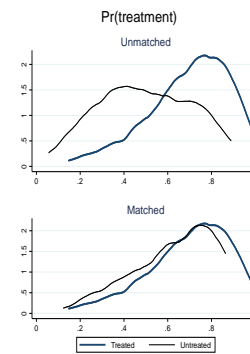
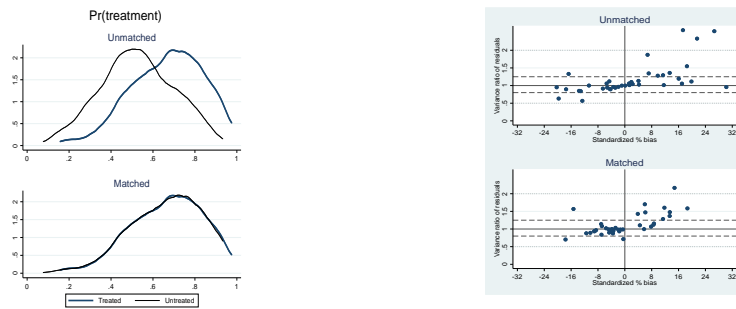
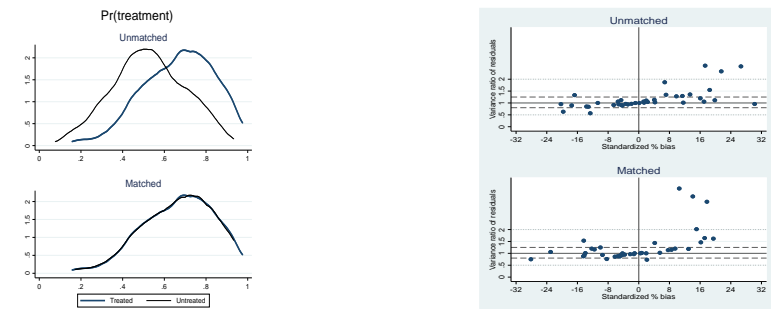


Table 29 Matching with different algorithms: Workplace heterogeneity – small-sized companies

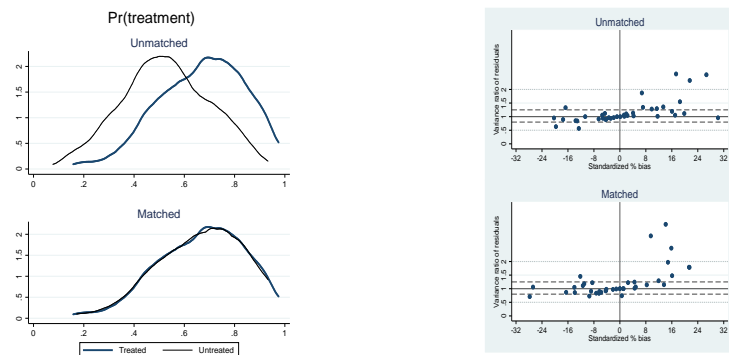
Kernel matching with calliper 0.01



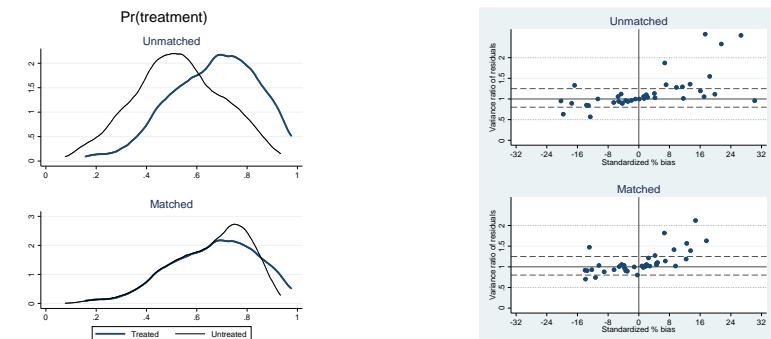
Kernel matching with calliper 0.002



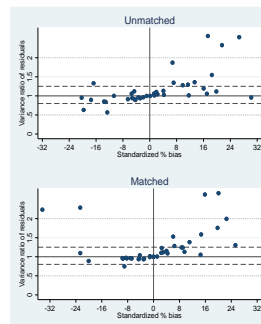
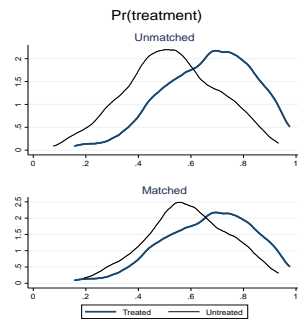
Nearest neighbour with replacement without calliper



1-to-1 Matching with 10 NN



Mahalanobis metric matching without propensity score



Mahalanobis metric matching with propensity score

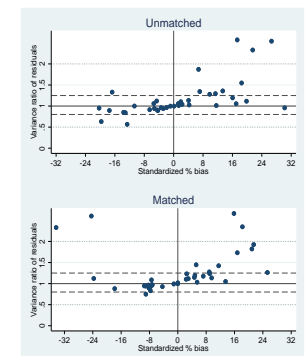
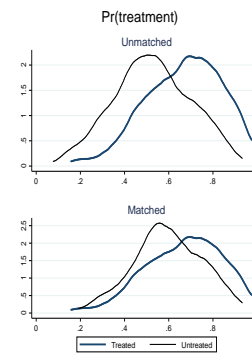
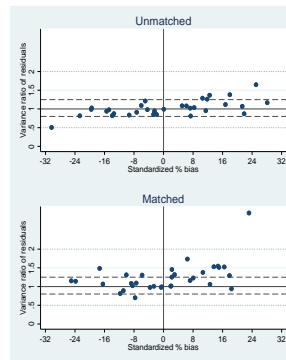
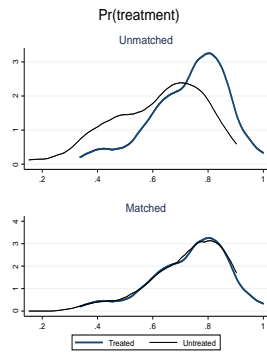
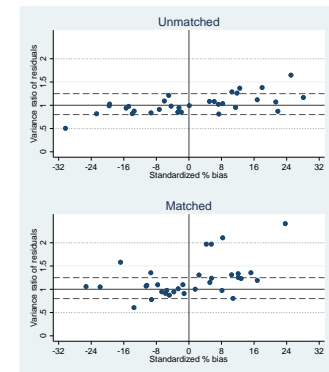
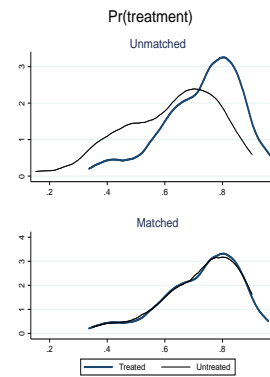


Table 30 Matching with different algorithms: Wage heterogeneity – Q5

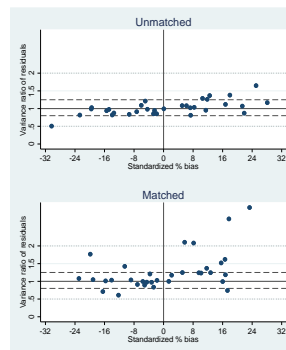
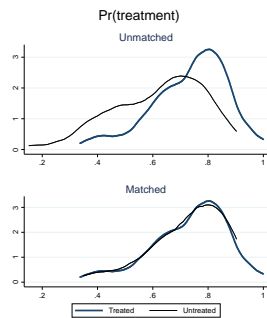
Kernel matching with calliper 0.01



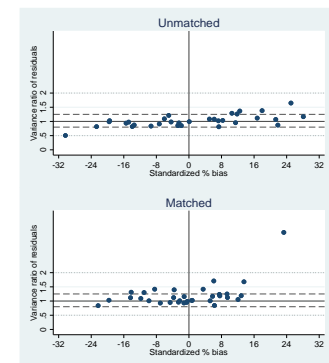
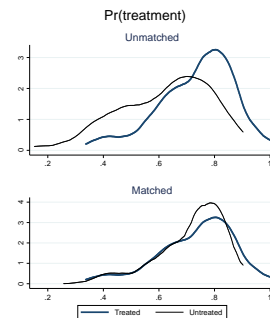
Kernel matching with calliper 0.002



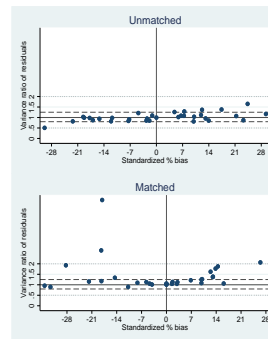
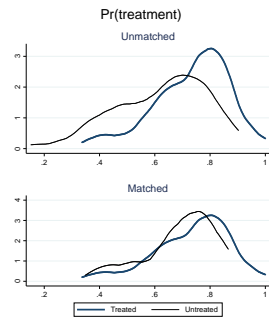
Nearest neighbour with replacement without calliper



1-to-1 Matching with 10 NN



Mahalanobis metric matching without propensity score



Mahalanobis metric matching with propensity score

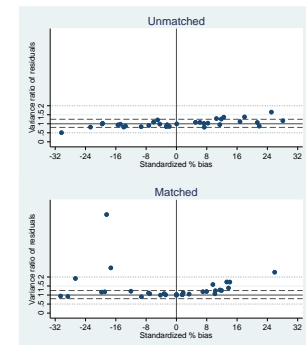
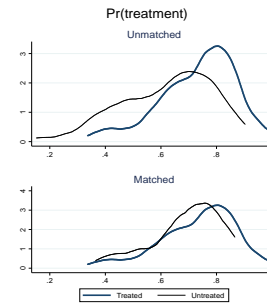
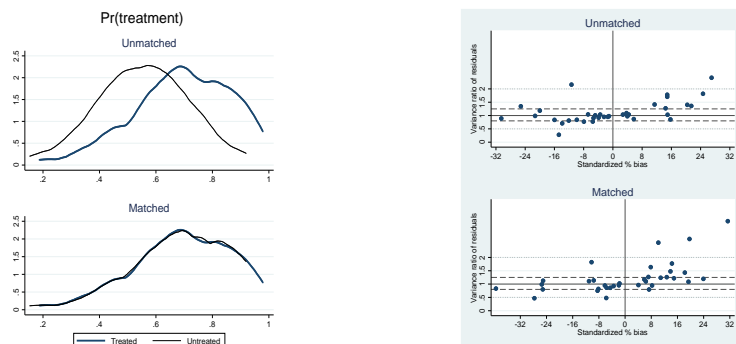
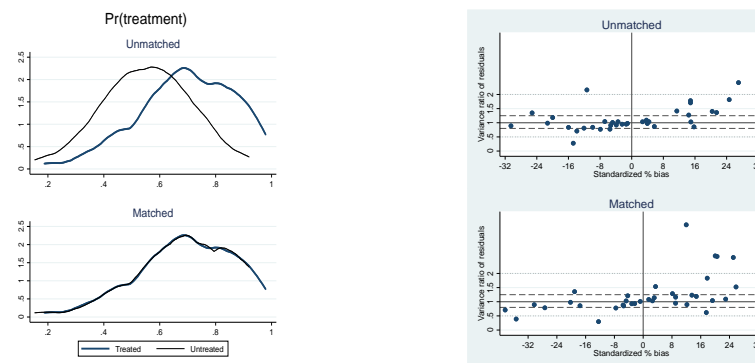


Table 31 Matching with different algorithms: Wage heterogeneity – Q4

Kernel matching with calliper 0.01

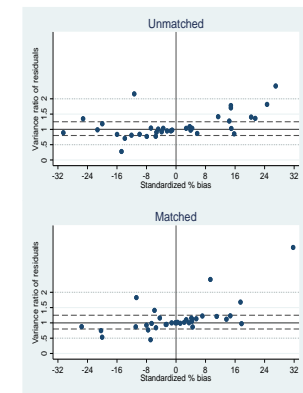
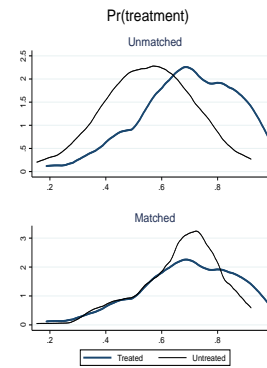
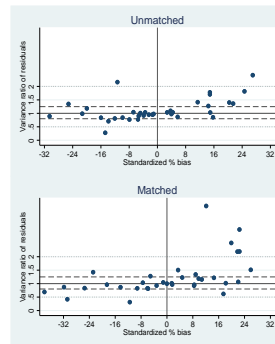
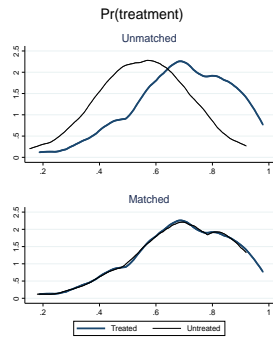


Kernel matching with calliper 0.002



Nearest neighbour with replacement without calliper

1-to-1 Matching with 10 NN



Mahalanobis metric matching without propensity score

Mahalanobis metric matching with propensity score

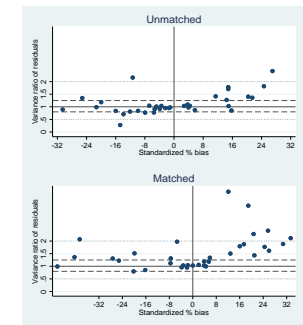
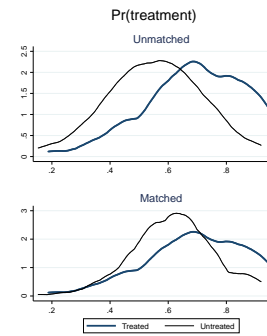
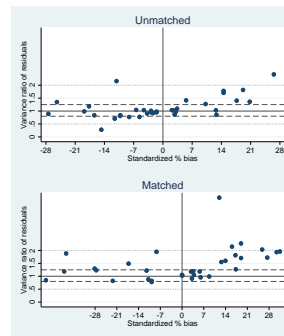
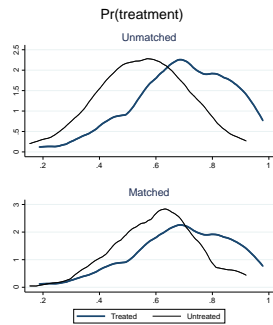
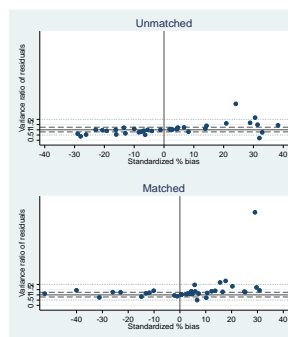
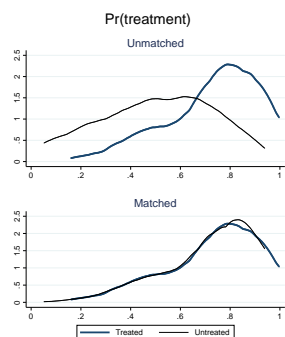
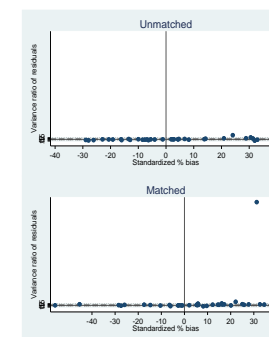
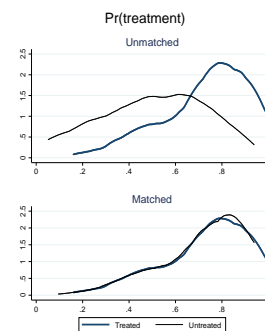


Table 32 Matching with different algorithms: Wage heterogeneity – Q3

Kernel matching with calliper 0.01

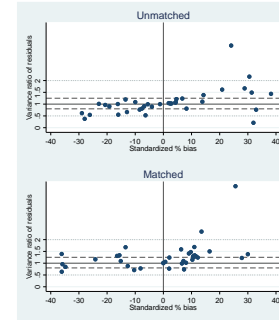
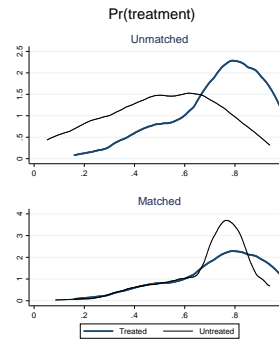
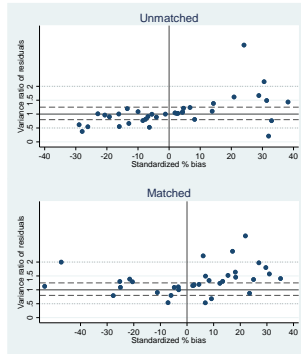
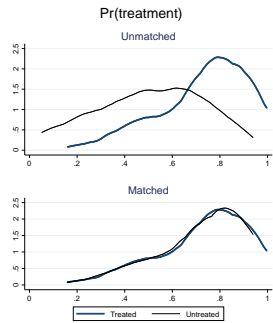


Kernel matching with calliper 0.002



Nearest neighbour with replacement without calliper

1-to-1 Matching with 10 NN



Mahalanobis metric matching without propensity score

Mahalanobis metric matching with propensity score

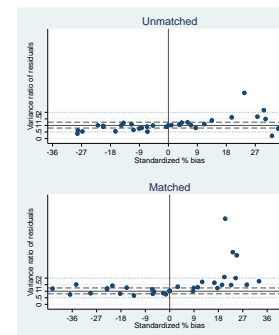
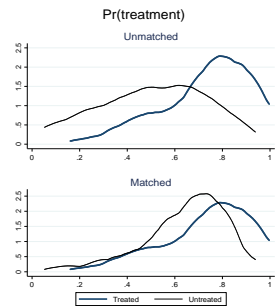
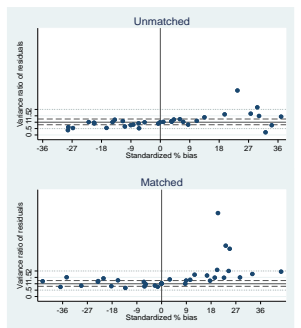
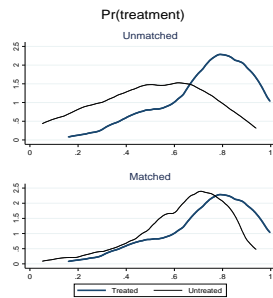
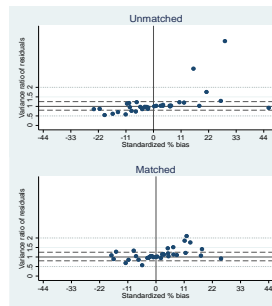
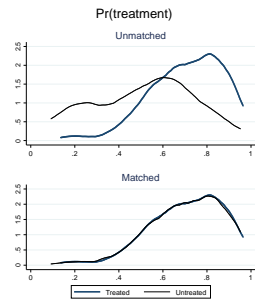
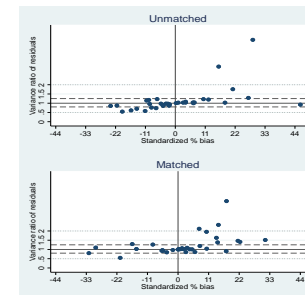
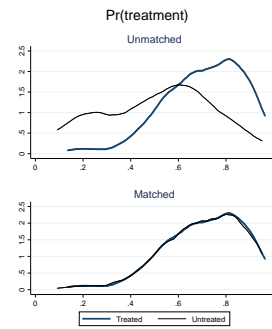


Table 33 Matching with different algorithms: Wage heterogeneity – Q2

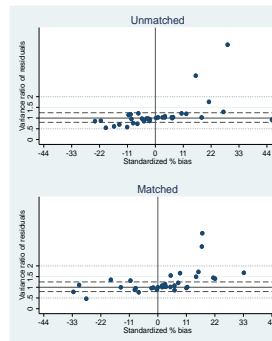
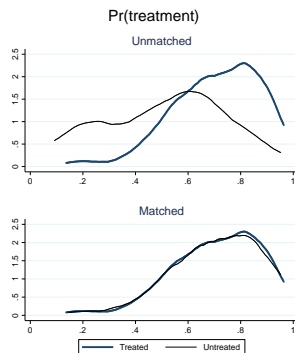
Kernel matching with calliper 0.01



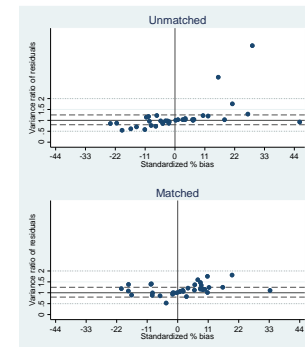
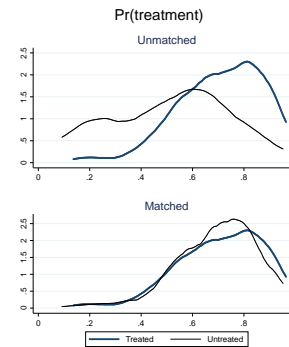
Kernel matching with calliper 0.002



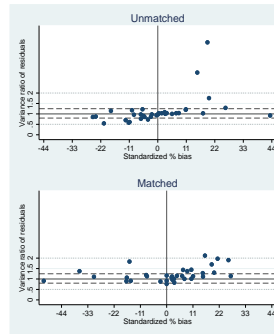
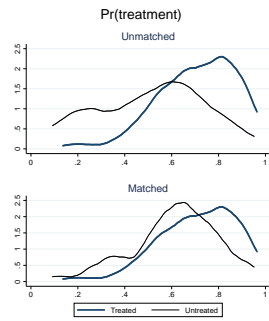
Nearest neighbour with replacement without calliper



1-to-1 Matching with 10 NN



Mahalanobis metric matching without propensity score



Mahalanobis metric matching with propensity score

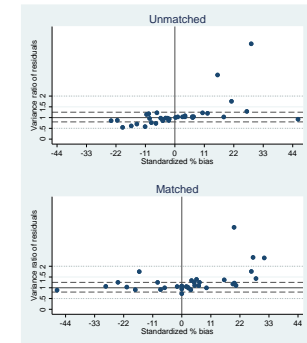
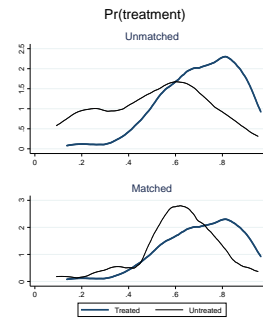
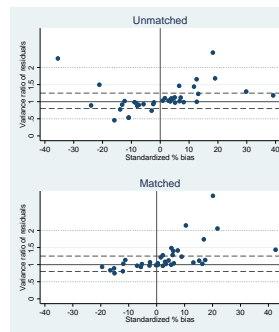
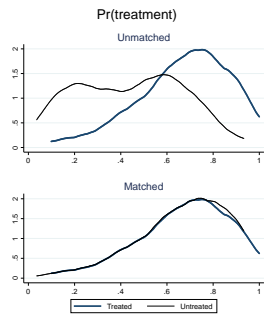
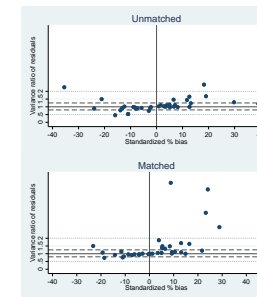
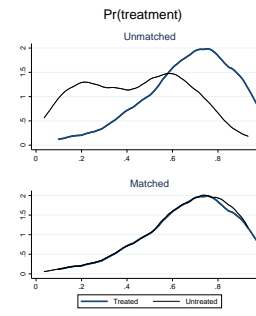


Table 34 Matching with different algorithms: Wage heterogeneity – Q1

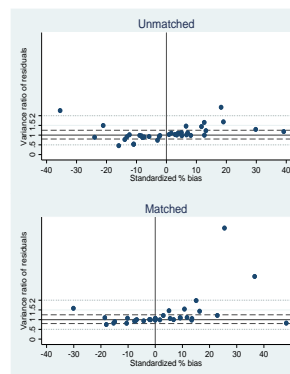
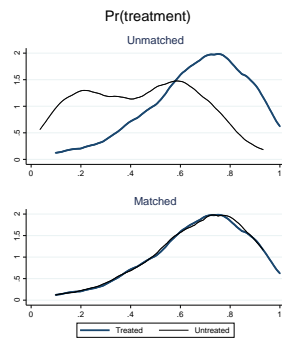
Kernel matching with calliper 0.01



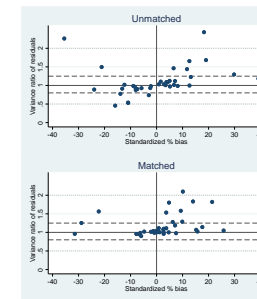
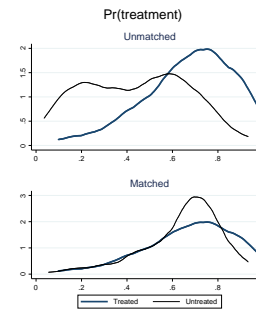
Kernel matching with calliper 0.002



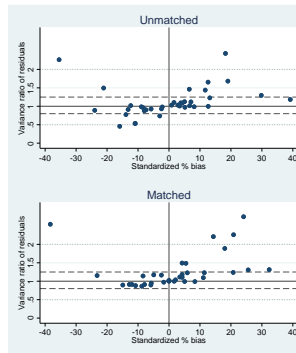
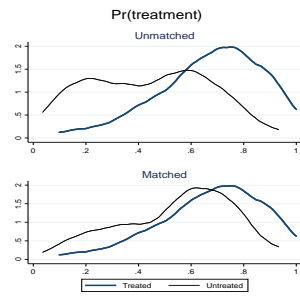
Nearest neighbour with replacement without calliper



1-to-1 Matching with 10 NN



Mahalanobis metric matching without propensity score



Mahalanobis metric matching with propensity score

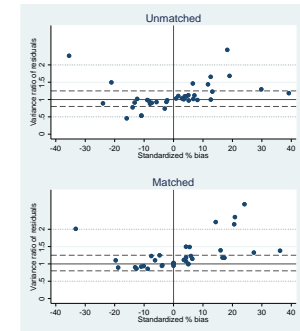
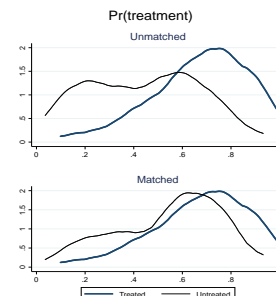
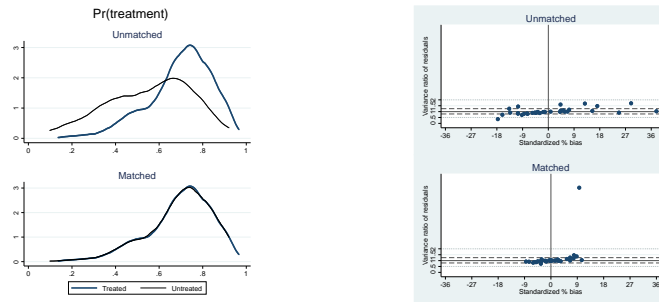
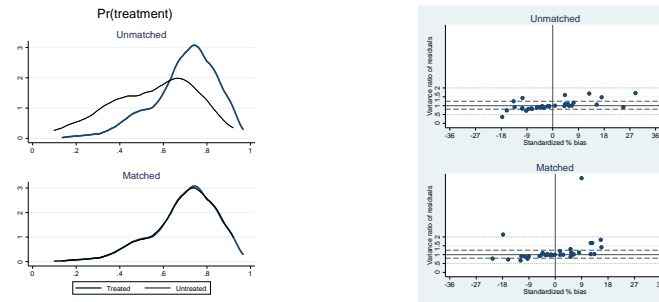


Table 35 Matching with different algorithms: Relative financial resources: mothers' earning more than fathers

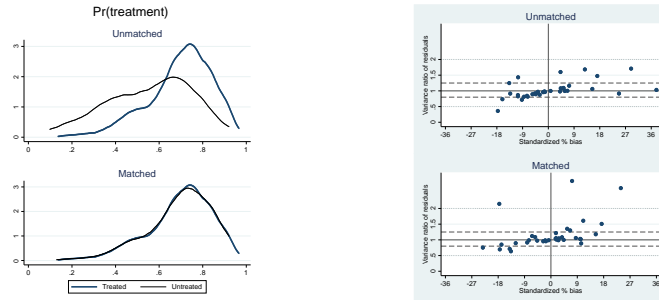
Kernel matching with caliper 0.01



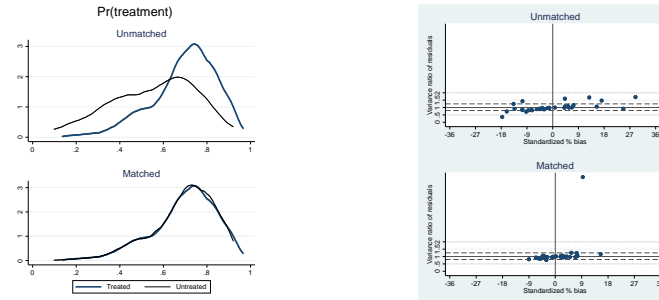
Kernel matching with caliper 0.02



Nearest neighbour without caliper



1-to-1 matching with 10 NN



Mahalanobis metric matching without propensity score

Mahalanobis metric matching with propensity score

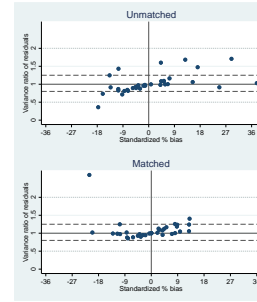
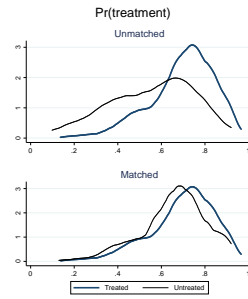
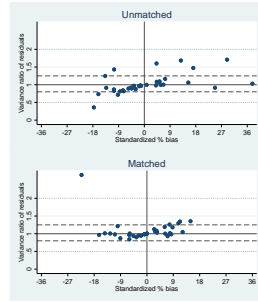
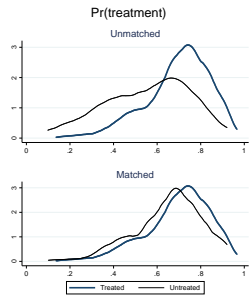
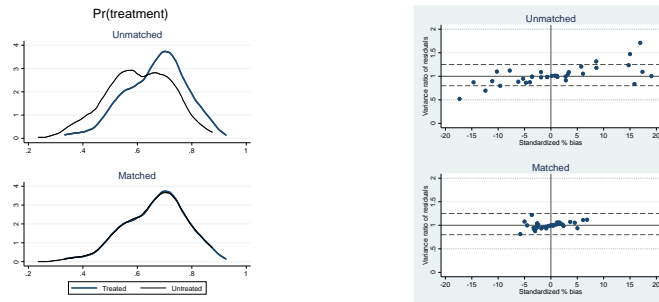
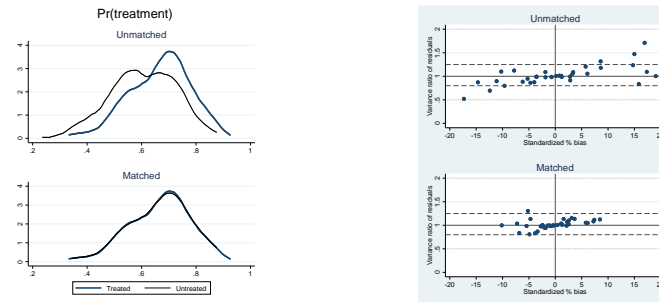


Table 36 Matching with different algorithms: Relative financial resources: fathers' earning more than mothers

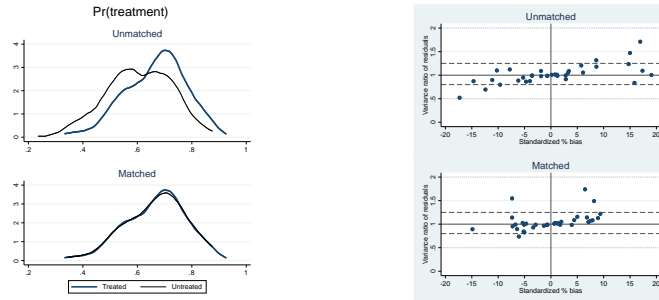
Kernel matching with caliper 0.01



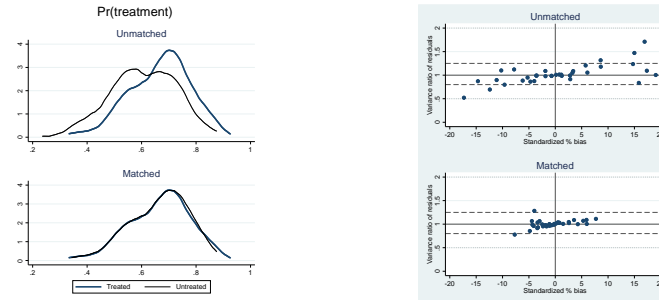
Kernel matching with caliper 0.02



Nearest neighbour without caliper



1-to-1 matching with 10 NN



Mahalanobis metric matching without propensity score

Mahalanobis metric matching with propensity score

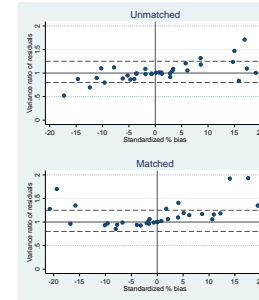
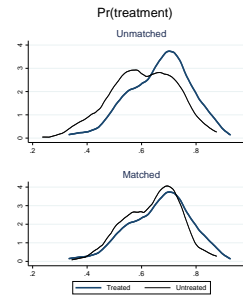
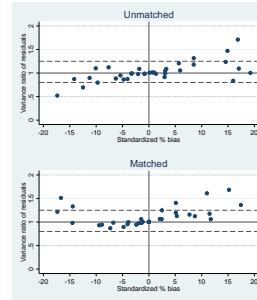
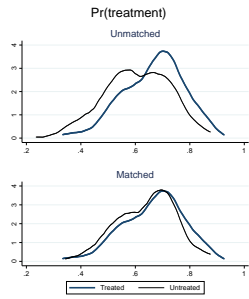
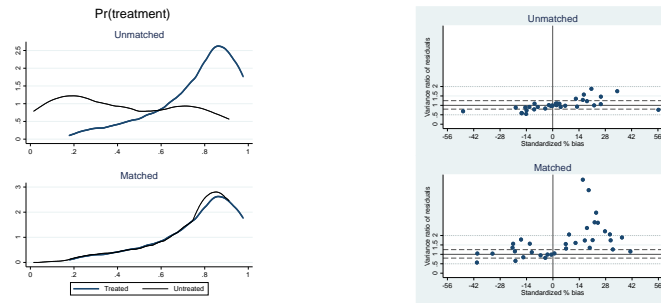
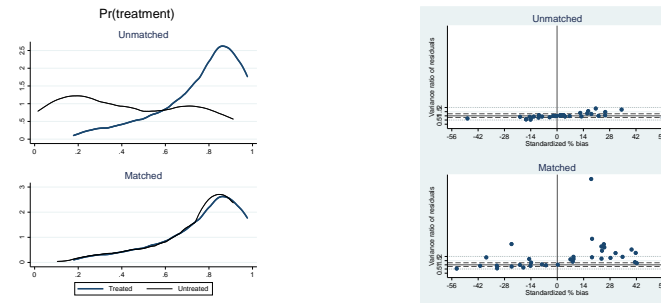


Table 37 Matching with different algorithms: Relative skill resources: parents' have similar skills (their work experience is the same)

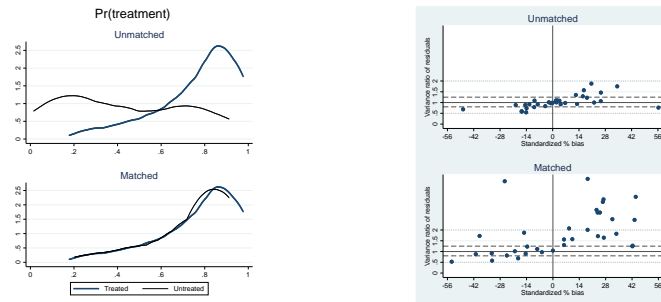
Kernel matching with caliper 0.01



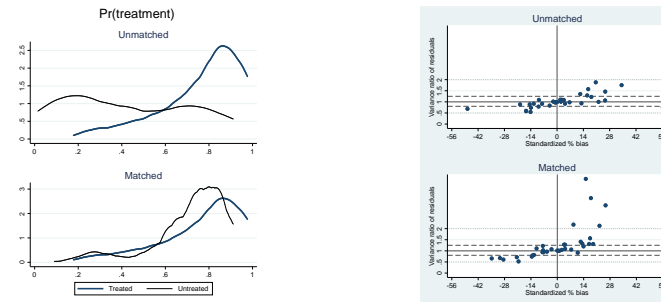
Kernel matching with caliper 0.02



Nearest neighbour without caliper



1-to-1 matching with 10 NN



Mahalanobis metric matching without propensity score

Mahalanobis metric matching with propensity score

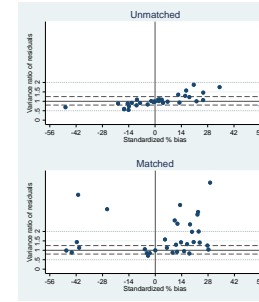
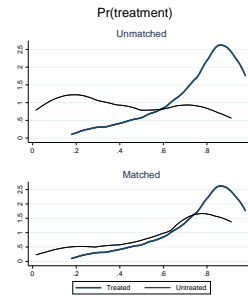
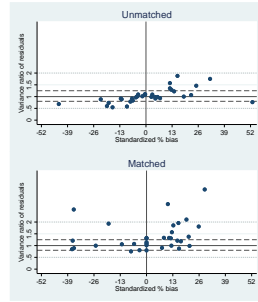
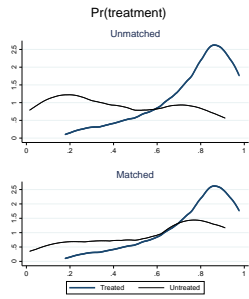
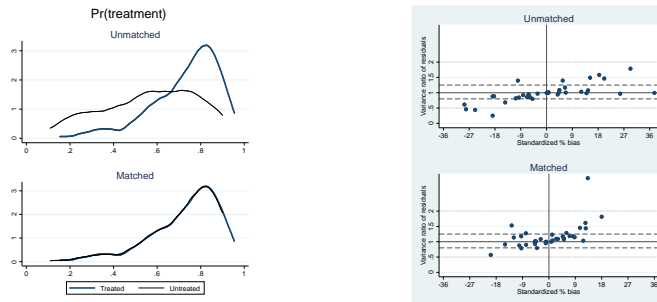
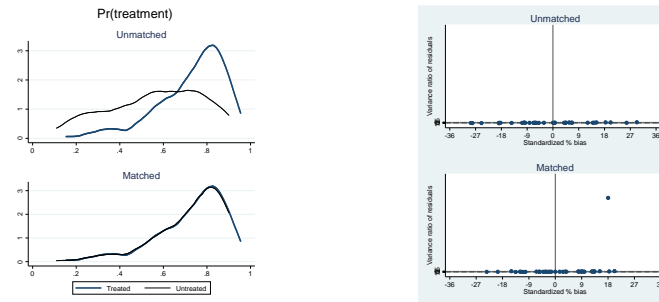


Table 38 Matching with different algorithms: Relative skill resources: mothers have greater skill resources

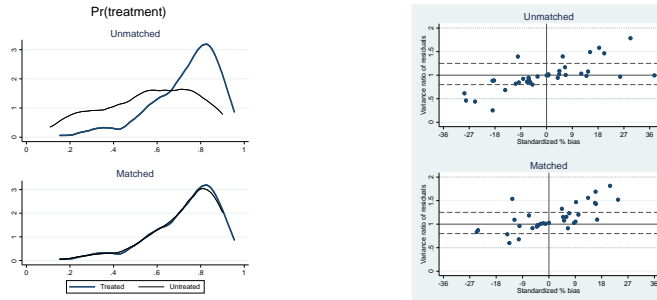
Kernel matching with caliper 0.01



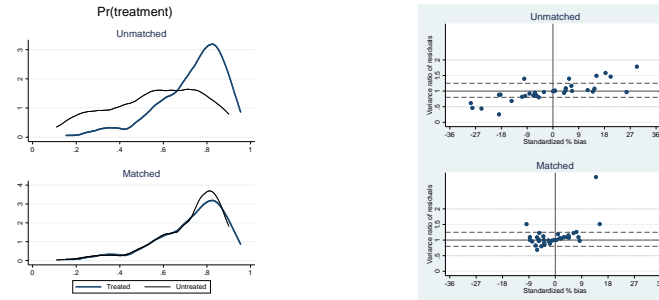
Kernel matching with caliper 0.02



Nearest neighbour without caliper



1-to-1 matching with 10 NN



Mahalanobis metric matching without propensity score

Mahalanobis metric matching with propensity score

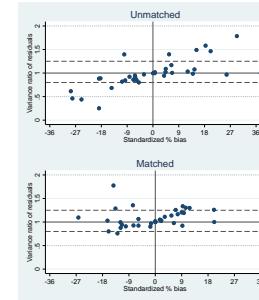
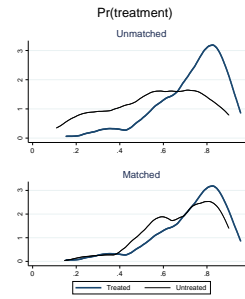
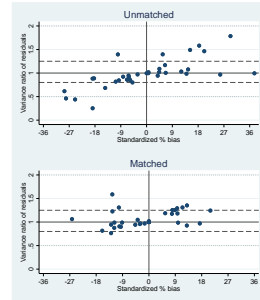
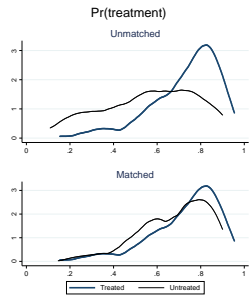
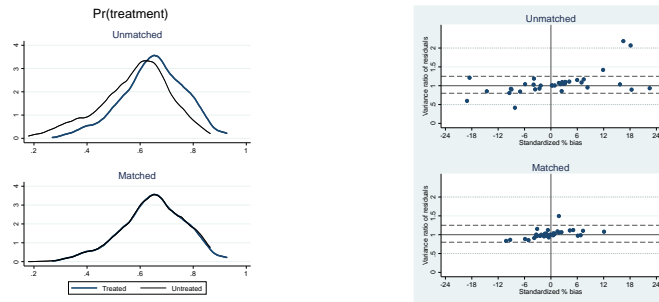
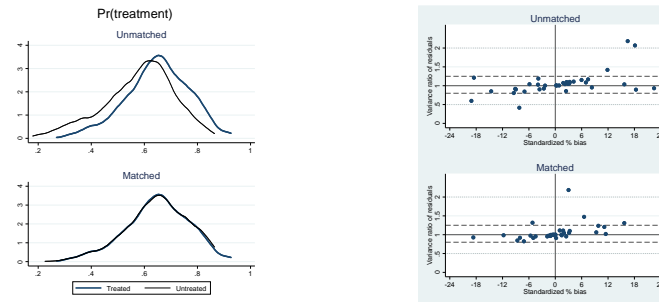


Table 39 Matching with different algorithms: Relative skill resources: fathers have greater skill resources

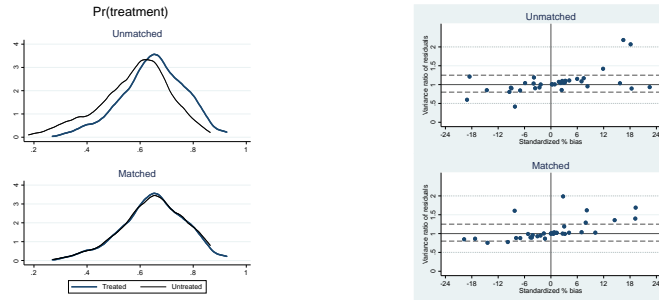
Kernel matching with caliper 0.01



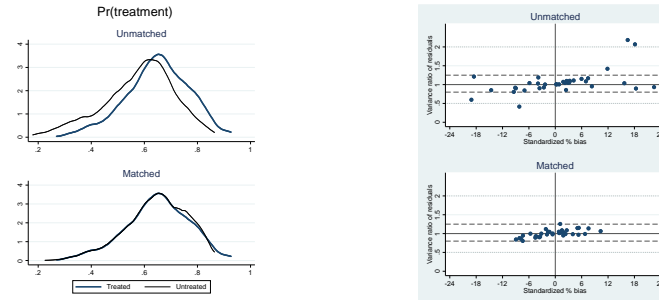
Kernel matching with caliper 0.02



Nearest neighbour without caliper



1-to-1 matching with 10 NN



Mahalanobis metric matching without propensity score

Mahalanobis metric matching with propensity score

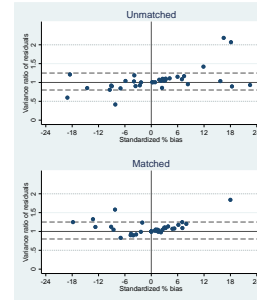
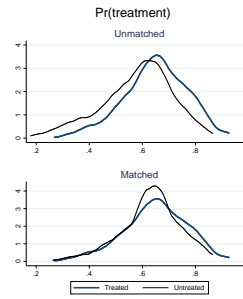
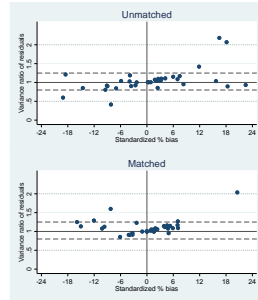
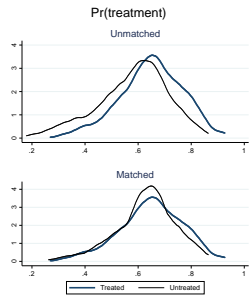
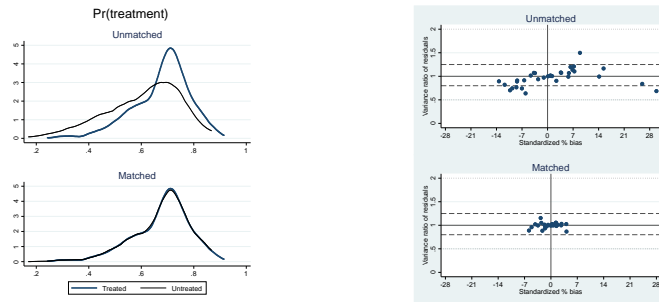
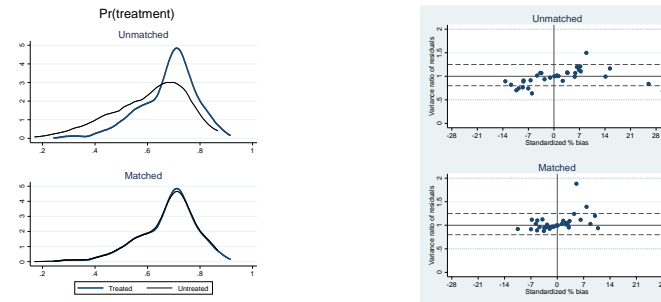


Table 40 Matching with different algorithms: Relative time resources: parents have similar time resources

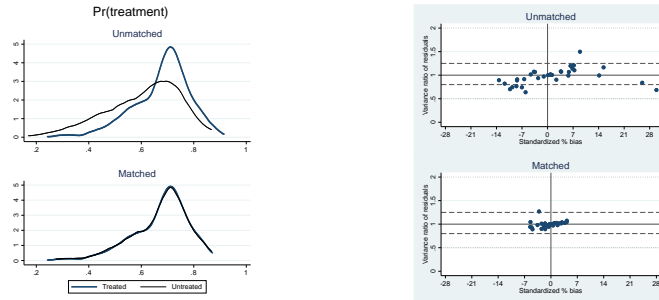
Kernel matching with caliper 0.01



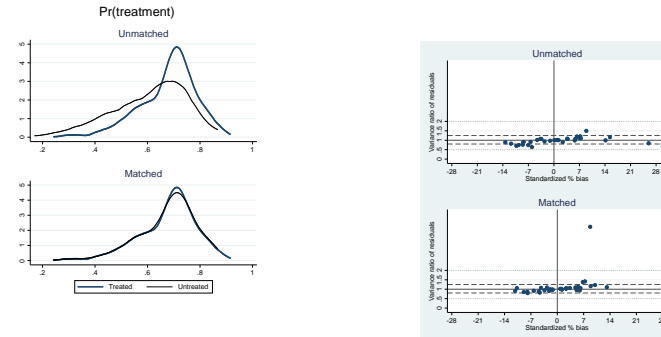
Kernel matching with caliper 0.02



Nearest neighbour without caliper



1-to-1 matching with 10 NN



Mahalanobis metric matching without propensity score

Mahalanobis metric matching with propensity score

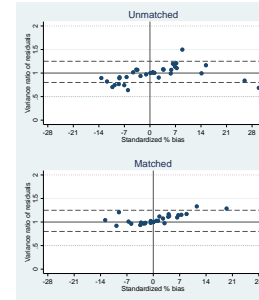
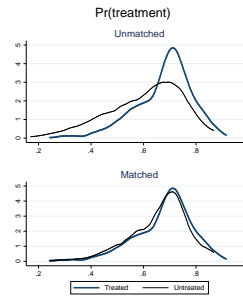
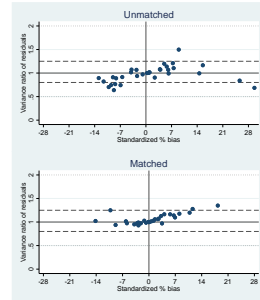
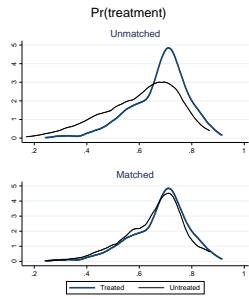
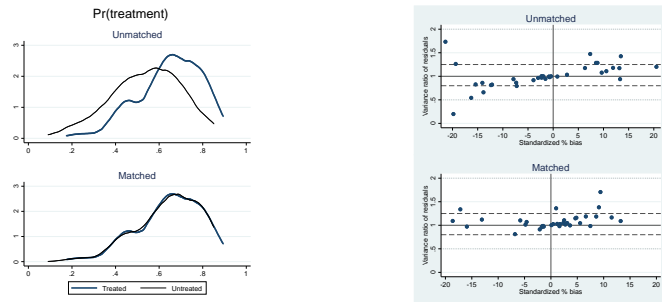
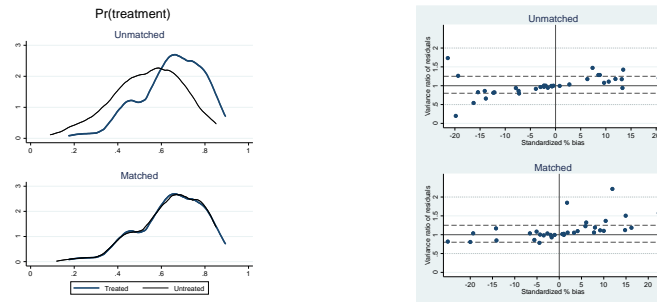


Table 41 Matching with different algorithms: Relative time resources: fathers work for longer hours

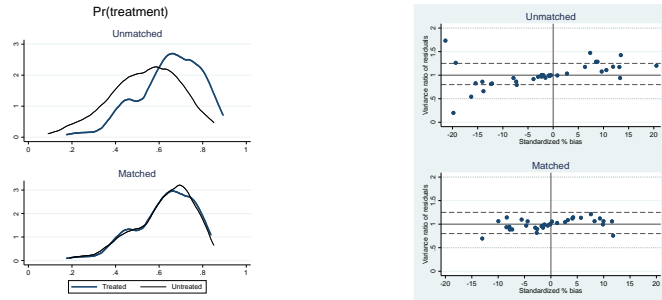
Kernel matching with caliper 0.01



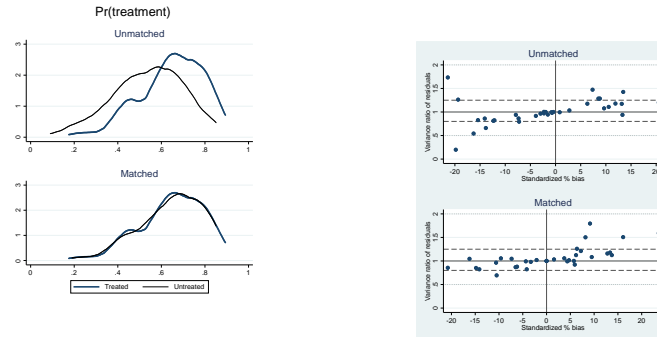
Kernel matching with caliper 0.02



Nearest neighbour without caliper



1-to-1 matching with 10 NN



Mahalanobis metric matching without propensity score

Mahalanobis metric matching with propensity score

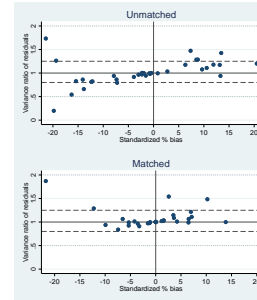
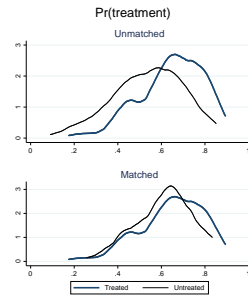
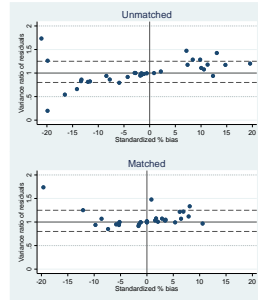
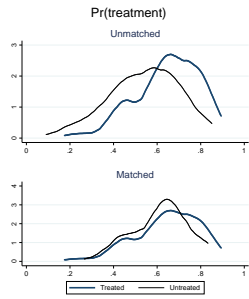
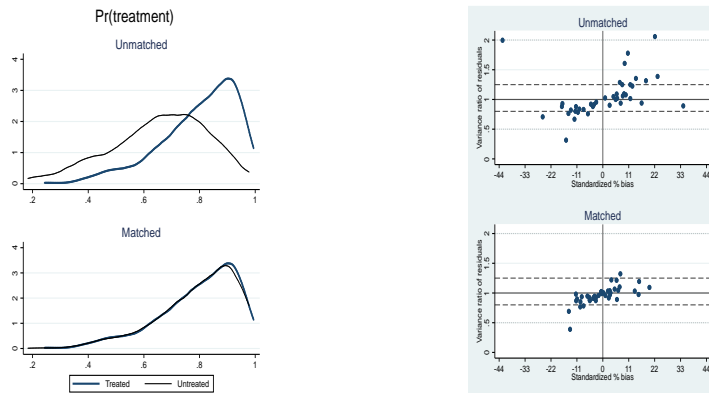
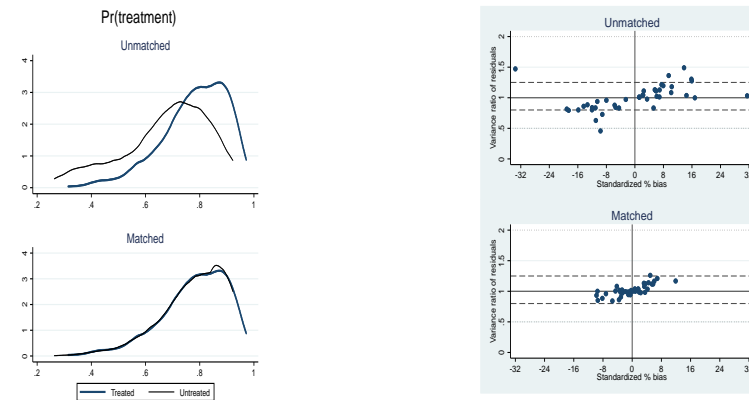


Table 42 Robustness check: comparison with previous cohorts, balance tests with Kernel matching with Calliper 0.01

Control group: December 2010–June 2011

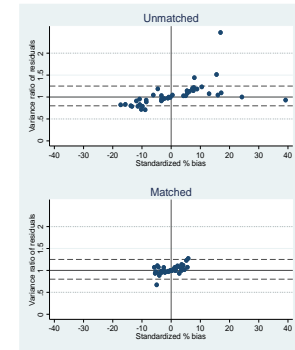
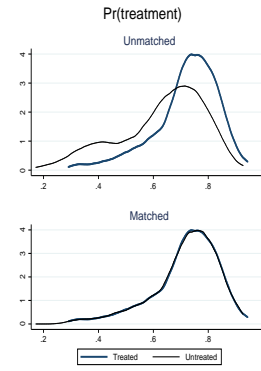
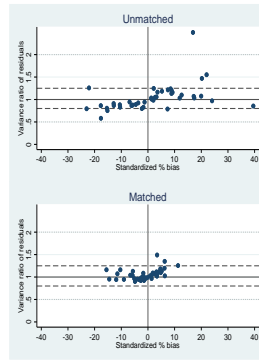
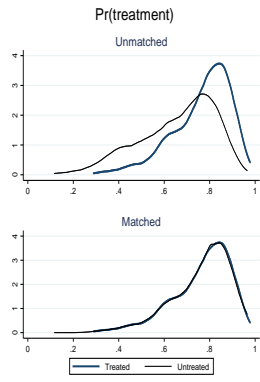


Control group: December 2011–June 2012



Control group: December 2012–June 2013

Control group: December 2013–June 2014



Appendix – Chapter 7

Table 43 Sample characteristics for the first analysis: the timing of the leave

Variable	Fathers	Mothers
	%	%
Weekly number of working hours		
Marginal part-time	1.57	4.44
Part-time	3.27	8.88
Full-time	95.16	86.68
Sector		
Private sector employee	79.90	86.16
Civil servant	20.10	13.84
Employment area		
Agriculture	8.78	3.58
Construction	13.30	1.79
Trade	10.51	11.28
Transportation	14.76	6.60
Catering	4.39	6.05
Finance	11.84	15.27
Real estate	7.71	14.72
Public administration, defence	22.47	20.08
Education, health	4.26	16.51
Service	1.99	4.13
Workplace size		
Small (<50)	28.06	30.26
Medium (50-250)	23.01	20.63
Large (250<)	48.94	49.11
Proportion of female employees		
0-59 per cent	91.62	59.83
60-100 per cent	8.38	40.17

Proportion of employees <45y.o.		
0-59 per cent	10.11	6.60
60-100 per cent	89.89	93.40
Proportion of white-collar employees		
0-59 per cent	39.63	29.30
60-100 per cent	60.37	70.70
Work experience		
<5 years	20.10	26.76
6-10 years	29.37	36.95
11< years	50.52	36.29
Wage quintile		
Q1	17.98	24.54
Q2	13.58	12.07
Q3	19.17	19.63
Q4	25.30	21.62
Q5	23.97	22.15
Parental leave take-up		
Leave taken	24.67	83.81
Leave not taken	75.33	16.19
Type of parental leave taken		
Full-time	45.70	71.29
Part-time	52.69	28.39
Split (1 day/week over 20 months)	1.61	0.31
Split (any 4 months over 20 months)		
Nationality		
Native Luxembourgger	55.22	55.87
Neighbouring countries (DE-BE-FR)	10.97	10.97
Portuguese	21.02	20.10

Other EU or non-European	12.79	13.05
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Note : N = 766

Source : IGSS 2020.

Table 44 Joint leave take-up decisions

Joint leave decisions:	RRR	Std. Err.	z	P> z	[95% Conf. Interval]	
Base outcome: mothers' leave > fathers' leave						
Leave shared equally						
Fathers' nationality						
Base: native Luxembourgish						
Neighbouring countries (DE-BE-FR)	.599594 4	.306973 6	- 1.0	0.31 8	.219820 9	1.63548 3
Portuguese	.623643 8	.343848 4	- 0.8	0.39 2	.211652 5	1.83759 5
Other EU or non-European	.571424 5	.305997 4	- 1.0	0.29 6	.200051 2	1.63221 2
Relative Financial Resources						
Fathers' share in the household income	2.59142 4	3.49820 1	0.7 1	0.48 1	.183860 7	36.5248
Fathers' share in the household income squared	.072531 2	.091454 4	- 2.0	0.03 7	.006127	.858623 5
Relative time						
Mothers work for longer hours	.276741 4	.231051 7	- 1.5	0.12 4	.053877 2	1.42148 8

Fathers work for longer hours	.703544 6	.357655	- 0.6 9	0.48 9	.259760 8	1.90550 4
Relative skills						
Parents have similar skill set	.252981 7	.150776 6	- 2.3 1	0.02 1	.078663 7	.813586 3
Mothers have greater skill set	1.00456	.292400 3	0.0 2	0.98 8	.567824 4	1.77720 6
Average hourly salary of fathers during the past 12 months before childbirth	.887278 9	.029634 6	- 3.5 8	0.00 0	.831056 5	.947304 8
Fathers' workplace size						
Small (<50) (vs. Large 250+)	1.34357 5	.542863 2	0.7 3	0.46 5	.608610 3	2.96609 2
Medium (50-250) (vs. Large (250+))	1.81464 3	.677066 4	1.6 0	0.11 0	.873367 3	3.77038 2
Fathers' employment industry						
(Base civil servants, defense)						
Agriculture	1.20733 4	.663778 3	0.3 4	0.73 2	.411004 3	3.54656 7
Construction	.430216 9	.300289 3	- 1.2 1	0.22 7	.109535	1.68974 8

Trade	.455138	.256191	-	0.16	.151012	1.37174
			1.4	2	7	3
			0			
Transportation	.688597	.304860	-	0.39	.289144	1.63989
	2	7	0.8	9	7	2
			4			
Catering	1.23906	.924402	0.2	0.77	.287113	5.34727
	1	3	9	4	4	
Finance	1.36579	.739714	0.5	0.56	.472471	3.94817
	6	3	8	5	7	2
Real estate	.561275	.347551	-	0.35	.166762	1.88910
	8	8	0.9	1	1	1
			3			
Education, health	.521132	.373654	-	0.36	.127830	2.12453
	9	2	0.9	3	3	1
			1			
Service	1.60e-07	.000168	-	0.98	0	.
		4	0.0	8		
			1			
Workforce composition at fathers' workplace						
Share of female employees	4.22539	2.34436	2.6	0.00	1.42428	12.5353
	1		0	9	7	4
Share of white-collar employees	1.21060	.483067	0.4	0.63	.553796	2.64641
	9	1	8	2	9	1
Share of employees younger than 45	.879765	.376685	-	0.76	.380111	2.03620
		4	0.3	5	6	8
			0			
Mothers' nationality						
Base: native Luxembourg						
Neighbouring countries (DE-BE-FR)	1.65094	.827492	1.0	0.31	.618145	4.40935
	5	5	0	7	1	3

Portuguese	.738500 4	.431909 3	- 0.5 2	0.60 4	.234708 4	2.32366 1
Other EU or non-European	2.42492 7	1.14914 2	1.8 7	0.06 2	.957910 9	6.13864
Mothers' workplace size						
Small (<50) (vs. Large 250+)	1.07856 9	.416076 2	0.2 0	0.84 5	.506387 3	2.29727 7
Medium (50- 250) (vs. Large (250+))	.858472 9	.315461 8	- 0.4 2	0.67 8	.417769 5	1.76407 2
Mothers' employment industry						
(Base: civil servants, defense)						
Agriculture	2.73395	1.92383 1	1.4 3	0.15 3	.688359 7	10.8584
Construction	2.12507 4	1.94276 5	0.8 2	0.41 0	.354157 6	12.7512 2
Trade	.303302 1	.222275 8	- 1.6 3	0.10 4	.072122 4	1.27550 1
Transportatio n	.521067 9	.348436	- 0.9 7	0.33 0	.140507 5	1.93236 6
Catering	.956985 6	.816398 4	- 0.0 5	0.95 9	.179783 8	5.09401 4
Finance	.960096 2	.472461 7	- 0.0 8	0.93 4	.365965 3	2.51877 6
Real estate	.759737 9	.474132	- 0.4 4	0.66 0	.223589 7	2.58152 2
Education, health	1.79337 5	1.00813 4	1.0 4	0.29 9	.595901 1	5.39719 7

Service	1.14211 9	.990212 4	0.1 5	0.87 8	.208796 7	6.24740 1
Average hourly salary of mothers during the past 12 months before childbirth	1.05637 6	.030449 3	1.9 0	0.05 7	.998351 3	1.11777 4
Workforce composition at mothers' workplace						
Share of female employees	.821225 6	.365201 8	- 0.4 4	0.65 8	.343502 8	1.96333 6
Share of white-collar employees	1.09273	.449222 7	0.2 2	0.82 9	.488183 4	2.44592 4
Share of employees younger than 45 year	.669281 2	.329652 2	- 0.8 2	0.41 5	.254889 6	1.75737 8
Child's sex (male vs female)	1.43024 1	.225298	2.2 7	0.02 3	1.05032 6	1.94757 6
Constant	.956956 8	.251093 5	- 0.1 7	0.86 7	.572199 8	1.60043 1
	0	0	- 2.2 7	0.02 3	0	2.19e-43
Fathers' leave > mothers' leave						
Fathers' nationality						
Base: native Luxembourg r						

Neighbouring countries (DE-BE-FR)	.152659 9	.181034 6	- 1.5 8	0.11 3	.014938 7	1.56004 9
Portuguese	1.19637 4	.965725 2	0.2 2	0.82 4	.245905 7	5.82056 9
Other EU or non-European	1.36812 6	1.00114 4	0.4 3	0.66 8	.326023	5.74121 7
Relative Financial Resources						
Fathers' share in the household income	.001314 3	.004902 3	- 1.7 8	0.07 5	8.79e-07	1.96609 2
Fathers' share in the household income squared	.000116 3	.000502	- 2.1 0	0.03 6	2.46e-08	.550453 2
Relative time						
Mothers work for longer hours	.616699 4	.675933 2	- 0.4 4	0.65 9	.071963 8	5.28485 2
Fathers work for longer hours	.196370 8	.241976 5	- 1.3 2	0.18 7	.017546 5	2.19767 7
Relative skills						
Parents have similar skill set	.446180 9	.324009 3	- 1.1 1	0.26 6	.107493 5	1.85199 5
Mothers have greater skill set	.534082	.288786	- 1.1 6	0.24 6	.185076 2	1.54122 2
Average hourly salary of fathers during the past 12 months						
	.955674 9	.058663 1	- 0.7 4	0.46 0	.847344 6	1.07785 5

before childbirth						
Fathers' workplace size						
Small (<50)	.315990	.230469	-	0.11	.075656	1.31978
(vs. Large 250+)	7	6	1.5 8	4	4	4
Medium (50- 250) (vs. Large (250+))	.605357	.384255	-	0.42	.174464	2.10047
	7		0.7 9	9	1	8
Fathers' employment industry						
(Base civil servants, defense)						
Agriculture	3.48257	3.14030	1.3 8	0.16 6	.594777 9	20.3913
Construction	1.08237	1.27718	0.0 7	0.94 7	.107144	10.9341
Trade	2.29086	2.21607	0.8 6	0.39 1	.344024	15.2549
Transportatio n	2.43742	1.6588	1.3 1	0.19 0	.642155 5	9.25167
Catering	1.11951	1.56729	0.0 8	0.93 6	.072004 4	17.4059
Finance	.424938	.536887	- 0.6 8	0.49 8	.035717 2	5.05561
Real estate	2.99444	2.72350	1.2 1	0.22 8	.503651 4	17.8033
Education, health	1.60286	1.91088	0.4 0	0.69 2	.154924 4	16.5833
Service	1.12e-06	.001386	- 0.0 1	0.99 1	0	.
Workforce composition at fathers' workplace						

Share of female employees	4.694817	4.389241	1.65	0.098	.7513114	29.33711
Share of white-collar employees	.6101331	.4029285	-0.75	0.454	.1672229	2.226145
Share of employees younger than 45	2.210838	1.878377	0.93	0.350	.4181742	11.68845
Mothers' nationality						
Base: native Luxembourg						
Neighbouring countries (DE-BE-FR)	1.595724	1.532383	0.49	0.627	.2429653	10.48025
Portuguese	1.714329	1.494597	0.62	0.536	.3104519	9.466597
Other EU or non-European	4.679413	3.469761	2.08	0.037	1.094031	20.01488
Mothers' workplace size						
Small (<50) (vs. Large 250+)	.769483	.5162769	-0.39	0.696	.2065827	2.866184
Medium (50-250) (vs. Large (250+)	.8235938	.5184567	-0.31	0.758	.2398155	2.828453
Mothers' employment industry						
(Base: civil servants, defense)						

Agriculture	3.63e-06	.003546	-	0.99	0	.
		1	0.0	0		
			1			
Construction	2.02e-06	.003079	-	0.99	0	.
		7	0.0	3		
			1			
Trade	2.46811	2.67563	0.8	0.40	.294843	20.6603
	2	9	3	5	5	8
Transportation	.285137	.343982	-	0.29	.026803	3.03335
	3	8	1.0	8	1	5
			4			
Catering	4.88980	7.44145	1.0	0.29	.247688	96.5330
	3	3	4	7	9	7
Finance	1.95765	1.44081	0.9	0.36	.462662	8.28342
	9		1	1	3	3
Real estate	.675830	.731321	-	0.71	.081048	5.63546
	8	9	0.3	7	7	8
			6			
Education, health	1.20078	1.18395	0.1	0.85	.173856	8.29350
Service	2.29e-06	.002035	-	0.98	0	.
		1	0.0	8		
			1			
Average hourly salary of fathers during the past 12 months before childbirth	1.04919	.052101	0.9	0.33	.951888	1.15644
	2	1	7	4	1	3
Workforce composition at mothers' workplace						
Share of white-collar employees	.687151	.538072	-	0.63	.148088	3.18848
	5	2	0.4	2	5	
			8			
Share of employees younger than 45	2.26552	1.92564	0.9	0.33	.428219	11.9859
	4	4	6	6	8	

Share of employees younger than 45 year	.404820 6	.375599 3	- 0.9 7	0.33 0	.065690 6	2.49471 9
Child's sex (male vs female)	2.00319 5	.581006 6	2.4 0	0.01 7	1.13459 5	3.53676 1
Constant	.635432 7	.277474 3	- 1.0 4	0.29 9	.270007 3	1.49542 1
	0	0	- 2.4 0	0.01 6	0	2.3e-112
<hr/>						
No leave is taken						
Fathers' nationality						
Base: native Luxembourg						
Neighbouring countries (DE-BE-FR)	1.62770 1	.840658 1	0.9 4	0.34 6	.591499 9	4.47913 7
Portuguese	1.87197 2	.904724 6	1.3 0	0.19 5	.725961 3	4.82708 9
Other EU or non-European	.520094 5	.310059 3	- 1.1 0	0.27 3	.161670 4	1.67314 7
Relative Financial Resources						
Fathers' share in the household income	2.92741	2.23087 4	1.4 1	0.15 9	.657375 4	13.0362 8
Fathers' share in the household income squared	2.55292 3	1.85274 9	1.2 9	0.19 7	.615587 7	10.5873 1
Relative time						

Mothers work for longer hours	1.22497 8	.677180 2	0.3 7	0.71 4	.414548 3	3.61977 1
Fathers work for longer hours	1.20084 1	.461375 2	0.4 8	0.63 4	.565516 3	2.54991 5
Relative skills						
Parents have similar skill set	.865066 7	.344012 4	- 0.3 6	0.71 5	.396781 1	1.88602 8
Mothers have greater skill set	.806926 4	.266517 4	- 0.6 5	0.51 6	.42237	1.54161 1
Average hourly salary of fathers during the past 12 months before childbirth	.926812 7	.023164 7	- 3.0 4	0.00 2	.882504 9	.973345 1
Fathers' workplace size						
Small (<50) (vs. Large 250+)	.977854 6	.375668 5	- 0.0 6	0.95 4	.460535 3	2.07627 9
Medium (50-250) (vs. Large (250+))	1.13734 6	.409357 6	0.3 6	0.72 1	.561727	2.30282
Fathers' employment industry						
(Base civil servants, defense)						
Agriculture	3.35924 1	2.37778 6	1.7 1	0.08 7	.838941	13.4508 8

Construction	3.24746 9	2.32403 8	1.6 5	0.10 0	.798704 5	13.2039 5
Trade	1.55012 6	1.10485 3	0.6 1	0.53 9	.383418	6.26702 7
Transportation	1.82596 3	1.22842 6	0.8 9	0.37 1	.488474 7	6.82562
Catering	1.74156 6	1.59831 7	0.6 0	0.54 6	.288238 8	10.5227 1
Finance	3.62155	2.62567 8	1.7 8	0.07 6	.874501 4	14.9978 3
Real estate	3.16115 3	2.35968 6	1.5 4	0.12 3	.731904 7	13.6532 7
Education, health	2.01753	1.77644 1	0.8 0	0.42 5	.359198 3	11.3319 7
Service	6.60515 1	6.43662 5	1.9 4	0.05 3	.978135 3	44.6032 5
Workforce composition at fathers' workplace						
Share of female employees	1.84937 2	.965089 5	1.1 8	0.23 9	.665008 2	5.14305 8
Share of white-collar employees	.406693 7	.179760 6	- 2.0	0.04 2	.171014 2	.967169 7
Share of employees younger than 45	1.26704 6	.538325 1	0.5 6	0.57 7	.550992 5	2.91366 2
Mothers' nationality						
Base: native Luxembourg						
Neighbouring countries (DE-BE-FR)	1.37094 3	.785677 6	0.5 5	0.58 2	.445863 2	4.21538 2
Portuguese	1.54239 7	.750088 3	0.8 9	0.37 3	.594628 4	4.00080 1

Other EU or non-European	2.10939 1	1.12777 4	1.4 0	0.16 3	.739719 5	6.01515 9
Mothers' workplace size						
Small (<50) (vs. Large 250+)	1.03387 8	.403247	0.0 9	0.93 2	.481362	2.22058
Medium (50-250) (vs. Large (250+))	1.96202 1	.726044 7	1.8 2	0.06 9	.949985 8	4.05219 4
Mothers' employment industry						
(Base: civil servants, defense)						
Agriculture	.170404	.205635 2	- 1.4 7	0.14 3	.016006 3	1.81412 9
Construction	1.53734 7	1.58911 8	0.4 2	0.67 7	.202724	11.6583 8
Trade	.570808 9	.378030 1	- 0.8 5	0.39 7	.155870 8	2.09033 9
Transportation	.851815 9	.635518	- 0.2 1	0.83 0	.197372 3	3.67625 3
Catering	1.31070 2	1.00383 8	0.3 5	0.72 4	.292137 6	5.88058 4
Finance	.735971 1	.443053 8	- 0.5 1	0.61 1	.226171 8	2.39487 7
Real estate	.702903 2	.427771 2	- 0.5 8	0.56 2	.213242 2	2.31695 6
Education, health	.755318 4	.468856 9	- 0.4 5	0.65 1	.223745 6	2.54979 7
Service	1.22760 4	.989107 7	0.2 5	0.79 9	.253061 6	5.95511 6

Average hourly salary of fathers during the past 12 months before childbirth	1.07025 2	.027393	2.6 5	0.00 8	1.01788 7	1.12531 1
Workforce composition at mothers' workplace						
Share of female employees	1.02473 8	.389202 1	0.0 6	0.94 9	.486766 6	2.15727 1
Share of white-collar employees	.926190 2	.353916 8	- 0.2 0	0.84 1	.437963 7	1.95867 4
Share of employees younger than 45 year	.937966 8	.566865 2	- 0.1 1	0.91 6	.286919 1	3.06630 7
Child's sex (male vs female)	.760047 2	.122829 2	- 1.7 0	0.09 0	.553707 2	1.04328
Constant	.918143	.250181 9	- 0.3 1	0.75 4	.538231 5	1.56621 6
	3.2e+23 8	1.0e+24 1	1.6 9	0.09 1	7.38e-39	.