



The impact of parental leave policies on
Labour market outcomes:
LITERATURE REVIEW

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1. Introduction

One of the most pressing work-family issues confronting men and women is how to balance work and home time in the first few months following the birth of a child. The work-family conflict has become more pressing as the labour force participation of women has risen sharply in recent decades, and women have become much more likely to work continuously over their lifecycle. This change has been particularly dramatic for mothers.

Increasing female labour force participation has created a tension between participation in paid work and childbearing. This tension stems from shifts in women's public roles (e.g. as employees) which have not been mirrored by equivalent shifts in the private sphere, as mothers continue to be considered as the primary care-givers for children (Wood and Neels, 2019). Gendered parenting norms are still difficult to reconcile with career development for many women, and consequently, work-family reconciliation policies have been increasingly expounded as an important mediating factor in relieving work-family incompatibility.

Parental leave is gender-neutral, job-protected leave from employment designed to facilitate employed parents' care of small children at home. It is distinct from other types of leave that working parents might take. Maternity leave grants women job-protected time off before and after childbirth, and paternity leave offers new fathers a few days or weeks to be with the family after childbirth (or adoption) with job protection. Maternity leave and paternity leave are typically concentrated around the birth of a child and cover a relatively short period of time (typically 14 to 20 weeks) and have high replacement rates. Parental leave tends to be longer (from 12 weeks to 3 years) with lower replacement rates. There may also be family leave or childrearing leave, where family leave offers a few days off per year to deal with illnesses or accidents involving a close family member and childrearing leaves are job-protected leaves that typically last several years until a child is four years or older and are usually unpaid or paid at a low level.

Parental leave is currently high on the political agenda in many industrialised countries, and the last 50 years have seen a steady increase in the number of countries offering government-funded parental leave. In Europe, many countries already have generous parental leave benefits, with others either considering introducing or expanding their parental leave programs. The United Kingdom (UK) is one of many OECD countries that offer government-funded parental leave that provides both mothers and fathers with the opportunity to take some time off work after the birth of a child without the risk of job loss.

Despite the growing literature examining the causal relationship between parental leave and maternal labour market outcomes, mothers' behavioural responses are still not well understood. While some studies show that the availability of paid parental leave itself can increase employment rates, much of the empirical literature finds otherwise. For example,

studies in Canada, **Austria**¹, Australia, Germany and **Norway** all find that mothers increase time spent at home when maternity leave is extended, and that the availability of leave reduces labour market attachment in the short term. A crucial influence in the impact of parental leave is the duration of leave period (Rossin-Slater, 2018).

This report provides a comprehensive review of the relevant literature and knowledge on the impact of parental leave policies on labour market outcomes. It focuses primarily on identifying how parental leave policies affect labour market outcomes, including both the predicted economic mechanisms and the empirical evidence. As such, it does not include a detailed description of the different data sources and methodological approaches taken in the empirical literature, but rather concentrates on understanding how and why parental leave policies may be useful in addressing the pressing problem that confronts parents: how to balance work and childrearing in the early months following the birth of a child.

2. Policy Design and Context

The basic characteristics of any legislation constitute the length of leave, the level of benefits during leave, flexibility options (e.g. the option of part-time), and the eligibility criteria. Specifically, the key elements of a leave scheme include the following:

- (i) Protection from dismissal from employer
- (ii) Maximum period of leave prescribed
- (iii) Minimum employment period for eligibility
- (iv) Replacement income
- (v) Right to return to pre-leave employment.

Developed countries vary substantially with respect to the length, flexibility, replacement benefits, and general use and acceptance of parental leave. They also differ in the broader social and policy contexts that parental leave sits within. In Europe, leave schemes for parents have been steadily evolving over the last few decades (Akgunduz and Plantenga, 2013). While maternity leave has existed for most of the 20th century, and was reinforced by the 1952 International Labour Organization (ILO) convention on maternity protection, it is only since the 1990s that the European Union (EU) has adopted directives on maternity leave that obligate its member states to certain provisions. For example, in 1992, the EU made 14 weeks of paid maternity leave the minimum; in 1996 it obligated member states to introduce three months unpaid parental leave; and it increased this unpaid parental leave to 4 months in 2010. Consequently, in Europe, maternity leave varies little across countries, with high replacement rates and leave durations typically between 14 to 20 weeks. In contrast, parental leave does very significantly.

¹ 10X Economy comparator countries are highlighted in blue colour throughout the document.

Across Europe there are three main clusters with regard to parental leave legislation. The first group of countries, including **Sweden, Finland** and **Denmark**, characterise the dual-earner family model and have generous parental leave systems. These countries have relatively long leave entitlements, high income-replacement levels, and very high leave uptake. The second cluster are characterised by the male breadwinner model that have long durations of leave with low allowances, and which facilitates one partner caring for the new-born while the other partner remains in the labour force (Germany, Portugal, Spain and **Austria**). Lastly, countries such as **Ireland**, the UK and Greece adopt a more market-orientated model with short state-mandated leaves.

In contrast, the four Visegrád countries of Central Europe (**Czech Republic**, Hungary, Poland and Slovakia) have family policies that favour parental care of young children, and are characterised by underdeveloped childcare services and policies that encourage women to leave the labour market to care for children at home. In these countries, leave policies are highly gendered in both presumption and in practice, and promote a traditional division of family care responsibilities with women perceived as carers and men expected to be breadwinners.

These cross country differences in the policy design and institutional context of parental leave policies are fundamental in understanding how parental leave schemes affect labour market outcomes, and in explaining the lack of consensus found in the relevant literature. It is vitally important to acknowledge that parental leave policies do not operate in a social or policy vacuum, but fit within a broader suite of family and labour market policies.

3. Parental Leave Policies in Northern Ireland

In the UK, statutory maternity leave was introduced in 1979, with little expansion of either public or private childcare services occurring until the 1990s. During the 1990s, a suite of work-family reconciliation policies aiming to support female employment were introduced. These included an extension to maternity leave, the introduction of paid paternity leave, unpaid parental leave, and the right to request flexible or reduced working hours to facilitate childcare and other responsibilities. In 1998, the national Childcare Strategy substantially increased public expenditure on childcare that included targeted provision and subsidies for low-income families.

Statutory maternity leave in Northern Ireland (NI) entitles the mother to 26 weeks of Ordinary Maternity Leave and 26 weeks of Additional Maternity Leave, giving a total of 52 weeks of statutory maternity leave. Entitlement requires the mother to be an employee, but statutory maternity leave is not conditional on length of employment with the employer, hours of work, or pay. Leave must be agreed with the employer and written notice must be given to the employer in advance. Employment rights and conditions are protected during statutory maternity leave, and the mother has the right to

be offered any suitable alternative job in the company if she is made redundant while on maternity leave. Compulsory maternity leave also exists in NI, which prohibits a mother from working during the two weeks after childbirth (four weeks if employed in a factory).

Statutory Maternity Pay in NI is paid for a maximum period of 39 weeks: 90% of the average gross weekly earnings (with no upper limit) for the first 6 weeks; and then either £156.66 or 90% of average gross weekly earnings (whichever is lower for the remaining 33 weeks).

Paternity leave in NI currently consists of a choice of either 1 or 2 weeks paid paternity leave, which must be taken in one go. Leave cannot be taken before the birth of the child, and it must end within 56 days of the birth. The statutory rate of Paternity Pay is £156.66 or 90% of the average weekly earnings (whichever is lower). To be entitled to paternity leave, an individual must be continuously employed by the employer for at least 26 weeks up to the qualifying week. To be entitled to paternity pay, the eligibility requirements are being employed by the employer up to the date of the birth, earning at least £123 a week (before tax), and having been continuously employed for at least 26 weeks up to the qualifying week.

In Northern Ireland, parental leave allows working parents the right to take unpaid time off work to look after a child or make arrangements for their welfare. The aim is to help parents spend more time with their child and balance their work and family commitments (NI Direct, 2023). To be eligible, parents must have a child aged under 18 years, be an employee and have at least one year's continuous service at the current employer. Each parent can take 18 weeks' parental leave for each child up to their 18th birthday.

Shared parental leave is also available in the UK, where parents can share up to 50 weeks of leave and up to 37 weeks of pay between them. The leave and pay must be shared in the first year after the child is born.

4. Theoretical Arguments for Parental Leave

The theoretical framework starts with the assumption that a woman will make her labour market participation decisions in order to maximise the household's lifetime utility. When out of employment, household utility will depend on the husband/partner's income (if in a partnership), her own private income, and on her productivity at home (which will vary with the number and ages of children). When in employment, household income will depend on these plus the wage the woman receives in the labour market (Wright and Ermisch, 1991).

After childbirth, a woman will decide whether or not to work depending on the wage offer she receives, which will depend on her own individual fixed characteristics, and she will only return to work if the wage offered exceeds her reservations wage (the lowest wage that will induce an individual to enter the labour force). The reservation wage has

ambiguous effects on the decision to work: (i) on one hand, the reservation wage may rise as motherhood increases the demand for a mother's time in childcare activities; while (ii) on the other hand, the reservation wage may decrease as a consequence of increased demand for market goods required for home production. As time out of the labour force increases, a mother's human capital will begin to depreciate, thus reducing the average wage offer she could expect to receive. In addition, there is a possible fall in her reservation wage due to the child becoming less time intensive. Overall, a mother's labour force participation behaviour will depend on the relationship between the loss in human capital (that affects her potential wage), the loss in her productivity at home (as the child gets older), and the existence of maternity or parental leave rights.

From a welfare perspective, leave legislation has effects on three distinct areas of welfare. First, the historical context and motivation for maternity leave was to protect the health and well-being of both mothers and new-born babies. This paternistic reason emphasises the positive health effects for infants, and is often used as a justification for mandating leave. Second, leave policy is argued to impact infertility rates, as the availability of parental leave supports the work-family combination and enables families to have more children while being active in the labour market. Fertility concerns, especially in countries with low fertility of working women, continue to be a prime driver for leave legislation. Third, leave legislation impacts upon the labour market outcomes of leavers (mostly women) in key areas of female labour market participation, female employment, wage levels, hours of work, and occupational segregation. Given these well-established and largely accepted arguments for maternity leave provision, the discussion in Europe focuses more on the optimal length of leave rather than questioning whether or not to have leave legislation at all.

Parental leave may have important consequences for future patterns of childbearing (Wood and Neels, 2019), through promoting families to have more children while being active in the labour force. For instance, mothers' uptake of parental leave may promote continued childbearing through facilitating an easier combination of work and family. If a positive leave experience allows mothers to spend more time with their child with little opportunity costs (in terms of foregone earnings, career opportunities, or workload backlogs), then continued childbearing may be stimulated through mothers having experienced a feasible and available strategy to combine work and family through parental leave schemes. It is therefore possible for positive leave-taking experiences to stimulate parity progression. Conversely, difficult work-family combinations may hamper further parity progression at the cost of continued fertility. Individual-level parental leave uptake has been found to have a positive impact on subsequent parity progression, and overall, most research points to parental leave schemes having positive effects on fertility (Lappegård, 2008).

From a labour market perspective, the effects of mandated leave are realised before and after motherhood. The opportunity for future leave increases the labour supply of

prospective parents before pregnancy, and it provides continuing labour market attachment after birth and after leave. In the absence of job protection, parents will drop out of the labour market for a longer period of time. The presence of parental leave therefore facilitates swifter and higher rates of return to work (since job security is guaranteed) and removes future search costs and the loss of firm-specific human capital. Consequently, leave legislation is predicted to have positive effects on employment, participation (the extensive margin of labour supply), and to provide better opportunities for women's careers through human capital retention.

However, there are potential negative labour market effects from leave legislation. Mandated leave may lengthen the time out of work and create artificial interruptions that adversely affect labour supply and diminish leave takers' human capital and productivity. Combined with lower labour demand from employers due to training and replacement costs for firms, these reductions in both labour supply and labour demand may result in both lower wages and employment for leave takers (through longer periods out of work and lower productivity).

The negative impacts of leave on women's careers and earnings profiles are even more pronounced when the leave periods are very long. Career interruptions are one of the main factors in women's lower earnings (Joseph *et al.*, 2013). Interruptions decrease work experience, depreciate human capital and can be interpreted by employers as a signal of lower commitment by women to their careers. In this regard, parental leave does not remove the motherhood wage penalty, it may actually increase it.

One crucial aspect in the discussion of how parental leave influences labour market outcomes is the length of the leave period: the labour market effects of taking parental leave are related to its length. Career interruptions that are long will penalise women's entire careers because they imply a lower probability of returning to work, flatter pay profiles, less advancement, and lower pensions after retirement (Joseph *et al.*, 2013). There is no clear consensus on how long parental leave should last, and little guidance is proffered in the literature. One exception is an OECD report, 'Doing Better for Families' from 2011 that recommended a maximum parental leave length of one year with high remuneration.

Parental leave can also affect the hours worked by women as, in the absence of leave, women may work shorter hours in order to balance their family and work lives. Without paid parental leave, as a time out of work, women may be pushed into combining work and care through shorter working hours that may have long-lasting effects on their labour market outcomes and careers. Thus, in the context of the intensive margin of labour supply (hours of work), parental leave can provide a policy tool to promote greater full-time labour market attachment for women.

5. Methodological Issues (the problem of selection)

From a theoretical point of view, the effect of parental leave policies on labour market outcomes remains ambiguous. The previous section highlights how parental leave can have both positive and negative effects on a range of labour market outcomes (including female employment, labour market participation, wages, working hours, and career opportunities). The impact of parental leave schemes on labour market outcomes therefore becomes an empirical issue, and the task of identifying the impact of these policies falls to empirical studies that seek to isolate and estimate the key causal relationships. However, any empirical attempt to estimate these causal effects must deal with the possibility that associations between leave uptake and subsequent labour market outcomes may reflect mechanisms of selection that seriously undermine the credibility of empirical findings if not controlled for.

The key issue is the selection mechanisms into leave-taking that make leave uptake and childbearing endogenous to one another. In contrast to analyses based on experimental design that enable treatment to be randomly assigned, parental leave uptake occurs as a result of a number of factors: (i) eligibility; (ii) the choice to take up leave (preferences); (iii) potential constraints towards leave-taking; and (iv) the availability of alternative work-family strategies (environmental factors).

Firstly, parental leave is only available for those who meet the eligibility criteria for uptake, typically with respect to being employed with the same employer for a specified time period. If mothers who are eligible for leave differ in non-random ways from mothers who are not eligible, then attempts to estimate causal effects may result in spurious association if eligibility is not controlled for.

Secondly, parental leave uptake is partially influenced by individual (unobserved) preferences. If preferences for parental leave are related to attitudes towards continued maternal employment, then we might expect women with positive attitudes towards maternal employment to self-select into leave use. Thus, a positive relation between leave-taking and maternal employment may be due to the self-selection of women with greater labour market attachment selecting into leave compared to women with lower preferences for maternal employment.

Thirdly, parental leave uptake will be influenced by opportunities and constraints. Of particular relevance is the issue of affordability in creating the opportunity for leave-taking, and whether the relationship between leave-taking and maternal employment reflects differential patterns for different income groups. With respect to constraints, leave-taking may depend on workplace constraints (e.g. employer attitudes, firm processes and procedures, and workplace cultural norms) such that those parents who take leave are more likely to be employed in firms that are more supportive towards work-family combinations.

Lastly, the choice to take parental leave will also be influenced by the wider policy context that includes the availability of childcare, both formal and informal. For instance, women who are more work-orientated may be more inclined to use childcare (that enables instantaneous work-family compatibility) instead of parental leave (Woods and Neels, 2019).

In summary, econometric analyses that estimate associations between leave uptake and labour market outcomes may reflect selection mechanisms that arise because those who take leave may be systematically different from those who do not take leave in respect to their labour market attachment, their employment-related eligibility, their personal and household characteristics (including income levels), and their contextual or environmental factors. It is therefore imperative that empirical investigations in this research area seek to separate these selection effects from the causal effects they wish to identify.

6. Empirical Evidence

Most early studies of maternity leave policies and their impact on the labour market are based on data from the United States (US), and the evidence from these early studies is mixed. For comparative purposes with the UK or Europe, the US evidence is not ideal due to major differences in policy design and eligibility. For instance, leave entitlement under the Family Medical Leave Act (FMLA) is only for employers with 50+ employees, thus more than one-half of private-sector workers in the US are uncovered. This presents the possibility that females sort across firms of different sizes on the basis of their preferences for work around birth. Plus, the duration of leave provided by FMLA is 12 weeks, much shorter than maternity leave entitlements in all European countries, and it is unpaid. Only 21% of US workers have access to paid family leave through their employers (Employee Benefits Survey, U.S. Bureau of Labor Statistics).

Evidence from the US context has shown small effects on employment (women who have access to leave are more likely to return to the pre-birth employer) and small effects on female income (women with maternity leave coverage receive higher wages). However, as stated above, the US evidence suffers from the effect of unobserved heterogeneity (differences in the unobserved characteristics of women who are eligible compared to those who aren't), so that a causal effect of maternity leave coverage is difficult to identify.

In contrast to the US, leave entitlements are typically universal, long and paid in Europe. The debates surrounding maternity leave and parental leave therefore differ within Europe compared to countries like the US. For instance, there is a growing debate in Europe about whether parental leave should be short or long, and the experience of several parental leave reforms in Europe have added to this debate (Joseph *et al.*, 2013). Empirically, the effects of longer leave periods on labour market outcomes have mainly

been investigated in the European context, and these studies typically find that duration leave has a crucial influence on subsequent labour market outcomes (Rossin-Slater, 2018).

The evidence of the relationship between the duration of parental leave and female employment is consistent across most studies: the longer the leave, the lower is female participation. One interesting study in this area is Joseph *et al.*'s (2013) evaluation of the impact of the introduction of short parental leave in France in 2004 (*Complément Libre Choix d'Activité*). The CLCA provided a parental leave benefit for new parents who temporarily interrupted their careers after the first birth (in contrast to the previous system that only targeted subsequent births), and it included those who chose to stop working (full CLCA) or to work less on a part-time basis (reduced CLCA) in order to look after the child. It was paid out for a maximum period of 6 months from the end of maternity leave, paternity leave or adoption leave, and it was subject to the eligibility requirement of previous employment. The reform, therefore, increased the incentive to prolong maternity leave after the first birth by 6 months paid maternity leave.

Joseph *et al.* (2013) find that more new mothers interrupted their careers after the 2004 reform, but the effects on career outcomes differed depending on whether the leave was part-time or full-time. In particular, part-time leaves had a negative effect on wages for medium and highly educated women. For these women, the detrimental effects of labour market interruption on human capital stocks and promotion, and the negative signal of employment commitment to the employer, are more pronounced, and therefore the penalty is higher for women with higher career prospects. Further results indicate that the short-term paid maternity leave helped low-educated women to remain in the labour market after childbirth, and helped the most well-off to reduce their working hours (to part-time), thereby alleviating the work-family conflict. Joseph *et al.* (2013) make one further interesting comment: parental leave is almost never taken by men, so the parental leave system encourages couple specialisation with the women reducing their labour market investment quite early in their lifecycle.

Regarding the empirical evidence within the European context, most of the empirical studies focus on a particular country, and exploit reforms to existing parental leave policies in order to estimate how these changes impact upon labour market outcomes.

For **Norway**, Dahl *et al.* (2016) investigate the case for paid maternity leave using a series of policy reforms that expanded paid leave from 18 to 35 weeks (without changing the length of job protection). They adopt a regression discontinuity (RD) estimator to obtain causal estimates of the effect of extra weeks of paid leave on a variety of outcomes including: parents' employment and income outcomes; child educational outcomes; and family outcomes (income, fertility, and marital stability).

They find that the maternity leave expansions had little effect on a wide variety of outcomes, including children's school outcomes, parental earnings, and participation in the labour market in both the short and long run, completed fertility, marriage or divorce.

In addition, the paid parental leave in Norway had negative redistribution properties, as it made regressive transfers from ineligible mothers and childless individuals to eligible mothers. Given that eligible mothers were more likely to have higher incomes, the extra leave payments amounted to a pure leisure transfer to middle- and upper-income families at the expense of some of the least well off in society. In the Norwegian case, the leave extensions were generous and costly (an estimated net benefit of only \$13 for a \$1,000 increase in parental leave costs), with no discernible effects on parental earnings or labour market participation in long or short run. There was also little evidence of an effect for father's long term labour market attachment, and no effect on gender equality. Based on their results, the authors conclude that the case for extended paid leave periods is weak.

Bergemann and Riphahn (2023) exploit a major reform of a paid parental leave program in Germany to identify the causal effect of parental leave on the labour market attachment of recent mothers. The parental leave reform in 2006 changed the amount and duration of child-rearing benefits: it replaced means-tested benefits provided for up to 24 months with earnings-related benefits provided for 12 months, without a means test and therefore available for all mothers. The new benefit was eligible to parents of children born on or after 1st January 2007, and it was more generous in terms of the transfer amount, but less generous in terms of the payment period of 12-14 months instead of the previous program's 24 months.

The theoretical predictions of this reform would suggest that mothers now receiving the new benefit, but who would have failed the prior means test, would be expected to decrease their labour force participation through a positive income effect that causes increased demand for non-work (leisure) time and an increase in reservation wages. Conversely, the removal of the transfer after 12 months would be expected to increase the incentive to reconnect to the labour market sooner.

Bergemann and Riphahn (2023) find that labour force participation increased for prior benefit recipients, for whom the duration of paid parental leave was reduced. This finding supports previous findings for **Austria**, where reforms led to a similar increase in labour force participation when the parental leave cash benefit duration decreased from 24 months to 18 months (Lalive *et al.*, 2014), and for the **Czech Republic** where extending benefits led to a decline in the return to the labour force (Mullerova, 2017) for Czech mothers. Bergemann and Riphahn (2023) further find that employment increased for new benefit recipients for whom paid parental leave benefits were newly introduced. This is also in line with previous findings from Australia (Hanel, 2013), California (Baum and Ruhm, 2016), and the UK (Burgess *et al.*, 2008). These findings indicate that rights to paid leave are associated with higher work and employment probabilities, and stronger attachment to the labour market. Overall, the German reform increased maternal labour force participation in the short- and medium term. In the German context, offering paid leave to mothers increased their labour market attachment and induced faster return of mothers to the labour market.

Wood and Neels (2019) investigate how individual-level parental leave uptake is related to subsequent patterns of parity progression and maternal employment. They focus on **Belgium**, and utilise data from the Belgian Administrative Socio-Demographic panel to estimate dynamic propensity score matching and discrete-time hazard models. Belgium resembles many other Western European countries in terms of its work-family reconciliation policies. Unlike the Nordic countries that are typified by relatively generous parental leave systems (consisting of relatively long leave entitlements, high-income-replacement levels, and very high leave take-up), Belgium has a low flat-rate parental leave benefit, limited financial support (and therefore a high opportunity cost of leave taking), a relatively short leave period, and a low uptake level.

Specifically, the parental leave system in Belgium during the 2000s provided employed mothers with 1-6 weeks before the baby was due and an obligatory minimum of 9 weeks following delivery (total of 15 weeks available). Ten days of paternity leave were available to men after the birth of the child. Both maternity leave and paternity leave had a relatively high replacement ratio of 75-100% depending on gender, length of leave and employment sector.

In the Belgian context, Wood and Neels (2019) do find evidence of selection issues. Mothers who took leave in Belgium were more strongly attached to the labour force (exhibiting longer working hours and higher employment intensity), had higher household income levels, worked for different types of employers (larger workplaces, specific employment sectors), and were more likely to be married. When controlling for these selection issues, they find that the associations between mothers' leave uptake and both parity progression and subsequent employment are negative, although the magnitude of the negative effect is very limited. The lack of any clear positive associations contrast with the research findings on Nordic European countries, and the authors suggest that these differences are assumed to lie in the design features, uptake levels and acceptability of parental leave. Belgium exhibits relatively short non-universal parental leave schemes with low replacement incomes along with high availability of formal childcare, which may explain the low overall level of parental leave uptake that may, it turn, result in a lower acceptance of leave-taking and higher penalties in the form of future career opportunities or workplace relations (Luekemann and Abendroth, 2018). Overall, for the Belgian context, the authors find no indication of higher parity progression among leave users, and the hazard of exiting the labour force was moderately higher for those who took leave.

Compared to other European countries, there is comparatively less research evidence for the **United Kingdom**, especially within the economics literature. One example of sociological research for the UK comes from Fagan and Norman (2012), who explore the post-birth employment transitions for a cohort of mothers who had a pregnancy in 2001-2002. While this study does not explicitly estimate the effect of maternity leave on labour market outcomes, it does highlight which mothers are more likely to resume employment

after taking maternity leave. They make use of the UK's Millennium Cohort Study (MCS) to conduct longitudinal, multivariate analysis, and their findings are in the context of the improvements in work-family reconciliation policies that the UK government introduced during the late 1990s.

Fagan and Norman find some interesting results that point to the importance of mothers' personal and household characteristics on their return to work after maternity leave. First, mothers are more likely to be employed, and employed full-time, when their child is aged three if they were employed during the pregnancy and returned to the same job nine months after childbirth. Second, a mother is more likely to be employed when the child is three years old if she held a managerial or professional position during pregnancy. The higher earnings that managerial and professional occupations offer, and the risk that a longer absence may stall career progression, create incentives for these women to pursue a continuous employment profile. Moreover, the purchase of childcare is less prohibitive for these women who earn higher levels of pay. Conversely, mothers in low occupational classes are less likely to remain in employment nine months after childbirth, and if they do so they are more likely to work shorter, part-time hours facilitated by informal childcare arrangements. The authors express concern at this finding, given that the penalties of part-time employment remain pronounced in the UK in terms of low hourly rates of pay, low weekly earnings, and limited upward occupational mobility.

Overall, Fagan and Norman (2012) find that mother's occupational class, ethnicity, household composition, and the working hours of the partner all significantly influence the probability of a mother being employed once the child is three years (conditional on the mother taking nine months maternity leave).

While most of the empirical studies focus on a particular country, there are several papers that adopt a cross-country approach to investigate parental leave policies. For example, Pronzato (2009) draws upon cross-country variation in parental leave policies to investigate their labour market impact. Specifically, she investigates the effect of statutory parental leave on mothers' post-birth employment by exploiting the variabilities in policies across EU countries. While the length of maternity leave and its replacement ratios are quite similar among EU countries, parental leave differs substantially with respect to length, paid period, and incentives for fathers' take-up. In countries where leave is family-based, and not individual-based, parental leave can play a role in re-distributing the division of work within the household and thereby promote gender equality.

Using data from the European Community Household Panel (ECHP data provided by Eurostat), and including Italy, Greece, Spain, Portugal, France, **Belgium**, **Austria**, the UK and **Finland**, Pronzato (2009) utilises a hazard discrete function to estimate the hazard of returning to work, and how this is influenced by statutory leave characteristics. She finds that women with more human capital return to work more quickly, while

women with higher family incomes return to work at a slower rate. The impact of human capital characteristics appear to be larger in Italy, Spain and Greece and smaller in **Finland** (which has more generous parental leave). Institutional characteristics are also important, much more so than human capital characteristics. The author concludes that, if the policy goal is to increase female labour force participation, then longer periods of job protection make women more likely to return to work after a child's birth.

Another cross-country study is Michoń (2015), who provides a comparative analysis of parental leave policies in the Visegrád countries (**Czech Republic**, Hungary, Poland and Slovakia), and examines the relationships between gender, employment and policy in these countries that are characterised by a very familiastic approach to childcare and family-related polices. Within these four countries, the Czech Republic is the only country where parental leave is not a family or maternal entitlement; instead each parent has an individual right to the same period of parental leave (the Czech Republic only introduced parental leave in 2001 following EU accession, when the previous extended maternity leave was made available to men and renamed parental leave).

Policies in these countries have focused on encouraging women, not men, to fulfil family care responsibilities and have encouraged women to leave the labour market. All four countries provide leave until a child is at least 3 years old, including 24-34 weeks of maternity leave with a substantial level of wage replacement throughout the leave period (at least two thirds of normal earnings). The Czech Republic provides parents with an earning-related payment until the child's third birthday with options on how to receive payment, either taking 70% of earnings over 24 months or a lesser percentage of earnings over a longer period (however, the level of payment is restricted by the imposition of a relatively low level ceiling). Employment in the Czech Republic is substantially above the EU average; however, employment rates of mothers with children up to six years of age in the Czech Republic is amongst the lowest in the European Union.

While having a young child is strongly connected to lower employment rates in the Czech Republic, once children are older (6–11 years), employment rebounds (more than doubles) compared to women with young children. In addition, part time work is rare in the Czech Republic, so the effects of being able to work less hours are not observed. This could be due to social attitudes in these countries as women are strongly perceived as carers. Michoń (2015) concludes that “women are subject to conflicting expectations and demands: the financial necessity to earn money, the social expectation to be a good mother understood as a mother who cares for a young child at home, and the importance of employment for independence and for fulfilling professional ambitions.”

While much of the empirical evidence comes out of Europe, there are a few studies that exist for other countries. For example, Baker and Milligan (2008) investigate the impact of maternity leaves in Canada on the period that mothers are away from work post-birth, and the likelihood that they will return to their pre-birth employer. The provision of job

protected leave in Canada is under provincial, not federal jurisdiction, and therefore mothers' leave eligibility varies across space as well as time, and the authors argue that this variation provides a credible, exogenous basis for statistical inference.

Leave legislation in Canada has several common features across provinces which include: employees are protected against dismissal due to pregnancy; a maximum period of leave is always prescribed; the leave is unpaid; and there is a minimum employment period for eligibility. Maternity leave replacement income is available to some mothers through the Employment Insurance system, and equates to 50-55% of weekly wages up to a cap set roughly at the average wage.

During the sample period of 1976 to 2002, Canada underwent several changes to its job-protected leave program: the introduction of modest entitlements (17-18 weeks) in several provinces, followed by widespread extensions of leaves to 29-70 weeks. These provincial changes took place within the context of partial income replacement for maternity and parental leaves through the federal Unemployment Insurance program.

Baker and Milligan (2008) focus on two aspects of maternity leave: (i) the average length of leave, and (ii) the proportion of mothers who return to employment with the pre-birth employer. Using data from the Labour Force Survey from 1976 to 2002, and taking advantage of the introduction and expansion of statutory job-protected maternity leave entitlements, they use several econometric techniques including OLS estimation and difference-in difference estimation in their identification strategy.

Empirical findings reveal that the introduction and initial expansions of short leave entitlements in the 1970s and 1980s led to increased leave-taking. However, the authors found no consistent evidence that women switched to leaves from being employed and at work. Instead, women staying at home with their child switched from leaving their jobs to taking leave. Essentially, the time spent at home did not increase due to job-protected maternity leave provision. Another key result is the sharp decrease in job separations and an increase in retention of the pre-birth job. The introduction of job-protected maternity leave may therefore have helped mothers preserve their job-specific human capital over the birth event.

For the introduction of longer leaves and parental leave in the 1990s, the results reveal a large response in being employed and on leave in the third and fourth months after birth, indicating that the leave entitlement led to more time available for new mothers to spend with their children. The authors also found a moderate increase in women returning to their pre-birth employer, and interpret this as increased job continuity. The increase in job continuity arises from two sources. Firstly, some women return back to the workforce instead of permanently quitting in order to care for their child; and secondly, a large share of mothers switched from taking new (mostly part-time) jobs while their child is young to taking longer leaves before returning full-time to the pre-birth employer.

Overall, the Canadian study finds differential results for the impact of short leaves compared to longer leaves. Longer leaves were found to impact on mothers' leave behaviour (both longer time at home with the child and greater job continuity), while shorter leaves did not lead to longer time out of the labour force. The lack of consistent evidence on the impact of short leave entitlements may simply be a result of short leave replicating the private arrangements that women make in the absence of leave legislation (Baker and Milligan, 2008).

In the context of developing countries, Ahmed and Fielding (2019) investigate the effects of both the level and the length of paid maternity leave on fertility, female employment, and infant mortality in developing countries in Africa and Asia. Using data from the World Bank and the ILO over the period 1995 to 2016, they find that paid maternity leave has very little effect on female formal sector employment, and has sometimes even led to employment being lower. They further find that, when women are able to go on maternity leave, it reduces the demand for female labour and consequently has negative effects on their labour force participation.

6.1 Wages

Regarding the impact of parental leave on the key labour market outcome of wages, most studies reach the same conclusion, that child-related time out of the labour market is negatively associated with earnings (Phipps *et al.*, 2001; Datta Gupta *et al.*, 2006) and contributes to the gender wage differential (Hotchkiss and Pitts, 2007). For their study on 16 European countries, Akgunduz and Plantenga (2013) focus on three labour market outcomes for women, two of which are earnings related. They identify wages in the manufacturing sector as an indicator for low-skill wages; wages in financial intermediation as an indicator of high-skilled wages; as well as the share of women working in professional jobs (as a proxy for occupational segregation). They find no significant effects for female manufacturing wages, whereas wages for women in financial intermediation decreased exponentially as the length of leave increased.

The authors proffer several explanations for these findings. First, employees in skilled sectors may be more likely to suffer perceived losses in human capital from taking leave. While firm-specific human capital may be protected to some degree by job protection, general human capital is likely to depreciate during leave. Akgunduz and Plantenga (2013) point out that the different impact of parental leave on general and firm-specific human capital will be important if the two types of human capital influence wages in different sectors and skill levels to varying degrees. The findings of this study certainly suggest that high-skilled wages are more likely to decrease substantially due to the depreciation of general human capital during parental leave. Second, a contributing explanation may be greater replacement costs for firms in high-skill sectors, where training is likely to be more costly. A third explanation may be that wages in the manufacturing sector are close to minimum or starting wages, and are therefore constrained in how much they can fall.

The impact of parental leave provision may therefore be more constrained in low-wage sectors.

Akgunduz and Plantenga's aggregate approach is very useful in placing parental leave within the more macroeconomic framework of employment, working hours and wages, and provides a general indication of the effects parental leave legislation has had over a 40 year period across Europe. They conclude that the case for extending minimum parental or maternity leave is not strong from a purely labour market perspective. While positive participation effects are captured by the minimum leave length, participation effects are minimal after that, along with the negative impacts of declining wages and greater occupational segregation.

The effect of prolonged leave on wages has mainly been explored in Europe where parental leave regulation is widespread. For example, Ruhm (1998) uses variation in parental leave provision across 16 European countries between 1969 and 1988, and adopting a difference-in-difference estimation strategy, he shows that leave of moderate length has no effect on female earnings while lengthier paid entitlements are associated with substantial wage reductions. Thévenon and Solaz (2012) also examine the long-term consequences of parental leave in 30 OECD countries from 1970 to 2010, and find that parental leave extension is associated with negative wage effects.

6.2 Part-time employment

In the UK, the most common way for women to combine employment with raising children has been through part-time employment. However, women who are employed part-time are more likely to suffer from diminished occupational status compared to both men and women who are employed full-time. While employment continuity does help part-time women to maintain their pre-birth occupational level, continuous full-time employment offers more protection from occupational downgrading post-childbirth. Part-time employment, therefore, has a 'scarring effect' on occupational mobility and future earnings, which leads to a wider gender gap between employed men and women who are employed part-time (Dex and Budoki, 2010; Francesconi and Gosling, 2005).

This penalty from part-time employment will vary according to a mother's labour market position. Women are more likely to work full-time and have continuous employment after child-birth if they have higher levels of education, on-the-job training and employment experience, and are returning to a high-level occupation that has higher earnings and career prospects (Chanfreau *et al.*, 2011; Hudson *et al.*, 2004). In effect, mothers with higher human capital levels and higher occupation classes are more likely to return to work relative to other women (Fagan and Norman, 2012).

7. Fathers' Parental Leave-taking

Recent developments in the EU have included a number of different initiatives and policy changes to increase the number of men who participate in parental leave. Despite the growing evidence that larger shares of men wish to participate in parenthood-related activities (even at the expense of reducing workplace participation), and parental leave being available to mothers and fathers in all EU countries, it is still the case that much fewer men take parental leave (Zhelyakova and Rotschard, 2018). Research on the determinants of fathers' parental leave uptake chiefly consists of single-country studies that have predominantly considered Nordic countries and Germany (Marynissen *et al.* (2019), which are countries that are characterised by de-gendered parental leave policies (policies that promote the elimination of gender roles).

Recent evidence has suggested that policy design can be effective in increasing fathers' take-up rates; in particular, when the leave is either partially or fully on a take-it-or-lose-it basis (Escot *et al.*, 2014; Ekberg *et al.*, 2013, Geisler and Kreyenfeld, 2012). While the evidence for fathers' parental leave uptake is more limited than for mothers, existing studies do reveal several important findings: with respect to personal and household characteristics, men are more likely to take leave for their first birth; when their partner is more educated; and when their partner has (relatively) higher earnings (Nielson, 2009; Geisler and Kreyenfeld, 2011; Lappegård, 2008); Sundström and Duvander, 2002). Organisational factors are also important: men are more likely to take parental leave if they are employed in the public sector (Lappegård, 2012; Nielson, 2009); in large organisations (Anxo *et al.*, 2007; Whitehouse *et al.*, 2007); and in workplaces with organisational cultures that exhibit greater father friendliness and management support (Haas *et al.*, 2002). In contrast, men are less likely to take parental leave in male-dominated workplaces (Bygren and Duvander, 2006), and working hours have been found to be inversely related to the probability of fathers sharing the care for their children (Fagan and Norman, 2016).

Zhelyakova and Rotschard (2018) provide an interesting case study on fathers' parental leave, and what affects fathers' decisions to use it. They investigate factors related to male use of parental leave using administrative data from **Luxembourg** over the period 2002-2008. Parental leave was only introduced in Luxembourg in 1999, under EU regulations, but the design of its parental leave program has been described as one of the best policies in Europe in terms of generosity and potential to achieve gender equality (De Henau *et al.*, 2007). Prior to its reform in 2017, the Luxembourg scheme gave each parent the right to 6 months parental leave full-time or 12 months part-time. The leave was individual and could not be transferred to the other parent. In a family with two parents, the first parent using parental leave had to take the leave immediately after the end of maternity leave (or adoption leave), while the other parent could take the leave up to the fifth birthday of the child. The benefit was paid on a flat-rate basis (independent of earnings, and equivalent to just over 50% of average monthly gross wages for men).

In the absence of a formal theoretical framework that explains fathers' decisions to take parental leave, Zhelyakova and Rotschard (2018) suggest that the decision will be based on a comparison of the value of the father's time at home to his opportunity cost of not working. The value of the father's time at home will depend on: his attitudes towards undertaking caring responsibilities and its gender division; whether or not his spouse is active in the labour market, and his spouse's earnings; and the spouse's preferences regarding caring arrangements.

The authors' specify two measures of the opportunity cost of not working for men: (i) foregone salary-related income as a direct measure of opportunity cost; and (ii) foregone promotion and career development opportunities as an indirect measure. Foregone income is calculated as the difference between the salary-related income and the benefit amount, and it is hypothesised to be negatively related to the probability of taking parental leave. Foregone promotion opportunities are measured by the salary growth of the father in the previous 6-month interval, and is also predicted to be negatively related to fathers taking leave (as it is less likely that fathers will plan to take leave as a time when their career development is progressing especially well).

Adopting the methodology of duration models, the authors find support for an inverse relationship between foregone salary-related income and taking parental leave, but surprisingly a positive relationship between fathers' salary growth and parental leave uptake. The first result is intuitive, in that fathers are less likely to take parental leave when the direct opportunity costs of foregone income are higher. For the second result, Zhelyakova and Rotschard (2018) offer one possible interpretation: if increases in work-related income are a result of job promotions to higher and more stable positions for fathers, then fathers may be more likely to take parental leave once their careers have reached a relatively stable place. Interpreting salary growth as career stability then implies that fathers' career stability is an important determinant of their taking up parental leave.

Zhelyakova and Rotschard (2018) further find that fathers are more likely to take parental leave for the first child and when there is more than one child aged under 5 years. The hazard of taking leave for the first child is 60% of that for the first child and 39% for the third child or higher parity. Thus, the spacing of births plays a role in fathers' decisions to take parental leave. This is consistent with the argument that parents become more specialised after the first birth, with mothers more likely to assume all or most of the childcare work, thereby reinforcing the more traditional gender division of tasks (Yavorsky *et al.*, 2015; Craig and Mullen, 2010).

Another study that focuses on father's parental leave is provided by Marynissen *et al.* (2019). They examine the association between fathers' pre-birth income and workplace characteristics, and whether fathers take up parental leave after the birth of their first child, and they use detailed longitudinal register data from **Sweden** and **Belgium**. Both Sweden and Belgium have a similar focus on high labour market participation of both

fathers and mothers, but substantial differences with respect to gender equality in the labour market, social policy, and childcare. The authors hypothesise that: (i) fathers facing high opportunity costs in terms of income and/or career prospects will be less likely to take up parental leave compared to fathers facing lower opportunity costs (in terms of income, fathers that contribute a higher share to the household income will be less likely to take up parental leave); and (ii) fathers' income and workplace characteristics will be stronger determinants of leave uptake in policy contexts that are less supportive of men taking parental leave (stronger effect of fathers' labour market characteristics in Belgium relative to Sweden).

With respect to the first hypothesis, the authors find that fathers most often use leave when there is gender equality in contributions to the household income in Sweden, which is line with findings for **Norway**. In contrast, for Belgium, the priority of minimising fathers' (and therefore households') opportunity costs prevail in parental leave decisions, which is similar to patterns found in Germany. For the second hypothesis, the authors do find that the association between fathers' pre-birth employment characteristics and their parental leave uptake differs between the two countries as they predicted. In particular, the lack of significant associations between workplace characteristics and fathers' leave use in Sweden seems to suggest that the use of parental leave has become a quasi-universal and accepted practice in that country in contrast to Belgium.

8. Conclusions

Parental leave schemes facilitate the combination of work and family life during the period of leave-taking. They fall within the broader context of work-family policies that are geared towards stimulating family formation and (primarily female) employment. In the context of rising female labour force participation and declining fertility levels in many developed countries during the last 50 years, policies seeking to reconcile work and family have been increasingly introduced, reformed, researched and evaluated by policymakers and researchers. However, to date, the growing body of research on these work-family reconciliation policies continues to be inconclusive. This is not surprising given the variety of policy design features and political, cultural, and institutional contexts considered (Wood and Neels (2019)).

Childbirth most significantly affects women because the child-bearing years correspond with the years of their core economic activity, when wages and skills should continue to grow. Consequently, motherhood remains one of the main determinants of women's lower activity in the labour force (Javornik and Kurowska, 2017). The empirical literature still points to the reality that women's traditional responsibility for children remains a significant barrier to employment opportunities. As long as women are the ones who reduce their work commitment and hours to accommodate the needs of young children,

then employers will continue to find it easy to offer women less lucrative and responsible employment positions (Selmi, 2000).

A critical review of the literature in this policy area reveals one of the primary issues that empirical studies face. This is the central problem of identifying exogenous variation in leave-taking by new mothers that arises because of the unobserved differences between women who have access to leave and those who don't. These unobserved differences, if not accounted for, will undermine the credibility of inferences based on techniques that do not control for selection bias. This highlights the importance of empirical investigations into the effects of parental leave adopting appropriate data and methodological approaches to help policymakers and researchers better understand how, and to what extent, parental leave schemes achieve their objectives.

One of the key lessons from the theoretical and empirical literatures is the importance of policy design. The design of maternity leave and parental leave provision can either enable or constrain parents' real opportunities by framing the conditions under which women can access and engage with employment opportunities, and men can access parenting over the family's lifecycle. The importance of policy design is relevant in all the areas that parental leave is predicted to influence, most importantly gender equality and labour market outcomes in the context and scope of this report.

With respect to gender equality, parental leave design can either re-inforce or mitigate gender and income inequalities by affecting parents' capabilities to achieve work and family fit. For instance, strengthening mandatory rights to family-friendly working conditions may not automatically promote gender equality. When male income is higher, increasing statutory entitlements to unpaid parental leave will effectively promote the 'male breadwinner' model through mothers being more likely to take parental leave (Bruning and Plantega, 1999), and thereby mothers are placed on the 'mommy track' with lower career prospects (Lommerud *et al.*, 2015).

With respect to labour market outcomes (as well as broader health and fertility outcomes), the empirical evidence clearly demonstrates that the impact of leave-taking varies depending on the design features of the parental leave policy. Of particular importance is the length of the leave duration and how this interacts with the personal and household characteristics of those taking leave. Shorter leaves have been shown to promote labour market attachment, and help women retain their human capital during leave and return to their prior employment (through job continuity). However, longer leaves lead to greater career interruption, and tend to negatively impact women through human capital depreciation, lower career progression, and lower earnings. A consistent finding is that leave will impact women differently depending on their levels of education, income, occupation, and sector of employment.

It is therefore vitally important that policymakers understand the purpose or objective of the parental leave policy they are intending to propose or reform. The effectiveness of

parental leave policies are manifestly dependent on the design of the policy, and its ability to achieve that objective. What is clear is that no parental leave policy can simultaneously achieve all of the various objectives that parental leave programs are designed to do. For instance, longer and generously funded parental leave schemes may be the best approach for achieving policy goals of increasing fertility rates or promoting child health and development. Whereas, shorter and less generously funded programs may be superior if the primary policy goal is to promote labour market participation amongst women.

Given the complexities of how parental leave policies can impact on women's labour market outcomes, a thorough understanding of the effects of parental leave uptake on labour market behaviour requires empirical evidence for a wide range of parental leave systems and welfare state types. As demonstrated in this review, it is widely acknowledged that parental leave uptake can imply both positive and negative labour market consequences.

Finally, there is a lack of research on how parental leave policies affect fathers. Paternity leave is rarely studied, and the limited research suggests that men are reluctant to take leave, even when covered, and typically only take a week or so when they do (Han *et al.*, 2009). Little is still known about how parental leave legislation affects fathers' leave-taking, and so the impact of leave legislation on fathers is particularly open to question. Changes in leave-taking by fathers is therefore of particular interest.

Summary of Parental Leave Policies

Country	Cluster	Leave Duration	Replacement	Labour Market Impacts
Sweden	Dual earner family (degendered leave policies ²)	Long	80%	Increased female labour market participation (almost all mothers return to work, with large majority to the same employer). Longer leaves for fathers lead to shorter time off by mothers. Shorter leave for mothers with higher education levels.
Finland	Dual earner family (degendered leave policies)	Long (112.5 weeks)	90% and 66%	Longer periods of job-protection increase return to work. Paid leave increases the probability of staying at home during the first year of life of the child (results from a cross-country study).
Denmark	Dual earner family (degendered leave policies). No fathers' leave.	Moderate (32 weeks)	100%	No substitution effects between fathers and mothers time off. Shorter leave for mothers with higher education levels. Longer work experience pre-birth reduces the length of mothers' leave.
Norway	Dual earner family (degendered leave policies)	Moderate (18 to 35 weeks)	100%	Expansion of leave had little effect on parents' participation or earnings, and no effect on gender equality.
Germany	Male breadwinner (degendered leave policies). More complicated mix of family policies between gendered and degendered.	Long (12 months)	100%	Expansion of leave reduced maternal employment in the short-run, with no effect on employment or income in the long-run. Negative impact on wages, especially in the short-run.

² Degendered policies promote the elimination of gender roles.

Portugal	Male breadwinner (gendered leave policies)	Long (104 weeks)	100%	Longer periods of job-protection increase return to work. Paid leave increases the probability of staying at home during the first year of life of the child (results from a cross-country study).
Spain	Male breadwinner (gendered leave policies)	Long (156 weeks)	100%	Longer periods of job-protection increase return to work. Paid leave increases the probability of staying at home during the first year of life of the child (results from a cross-country study).
Austria	Male breadwinner (gendered leave policies)	Long (18 months)	100%	Reducing leave duration increased labour force participation.
UK	Market orientated (gendered leave policies)	Short (13 weeks)	35.7%	Family leave coverage has little effect on return to previous employer within 12 months of birth.
Greece	Market orientated (gendered leave policies)	Short (13 weeks)	100%	Longer periods of job-protection increase return to work. Paid leave increases the probability of staying at home during the first year of life of the child (results from a cross-country study).
Czech Republic	Visegrad country. Male breadwinner (gendered leave policies)	Leave until a child is 3 years old	Earnings related payment (70% over 24 months or lower % over longer period)	Extending benefits reduced return to the labour force.
Hungary	Visegrad country. (gendered leave policies)	Leave until a child is 3 years old	Substantial level (at least two thirds of normal earnings)	Low labour market attachment for mothers. Evidence of a wage penalty for mothers.
Poland	Visegrad country. Market orientated (gendered leave policies)	Leave until a child is 3 years old	Substantial level (at least to thirds of normal earnings)	Lack of incentives for fathers to take up parental leave. No country-specific evidence on labour market effects.

Slovakia	Visegrad country. Male breadwinner (gendered leave policies). Yet, relatively well developed family policies.	Leave until a child is 3 years old	Substantial level (at least two thirds of normal earnings)	Lack of incentives for fathers to take up parental leave. No country-specific evidence on labour market effects.
Belgium	Work-family context: high availability of formal childcare and routine use of informal childcare.	Short (9 weeks following delivery)	Limited financial support (ungenerous). Low flat-rate benefit.	Mothers' leave uptake has no effect on maternal employment.
Canada	Provisional Jurisdiction	At least 52 weeks	Unpaid/Employment Insurance System which provides 50%-55% of weekly wages up to a cap.	Job protection increases return to pre-birth employer. Modest leaves don't increase time away from work, but longer leaves do.

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