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Caring Dads? Universal Childcare, Paternity Leave, and Fathers' Labor Supply

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Abstract

We study how expansions of publicly subsidized childcare affect the intra-household allocation of labor supply in early childhood, with a particular focus on fathers. Exploiting variation in the roll-out of childcare places for children under three across German counties, we show that increased availability accelerates childcare entry and maternal return to work. Fathers also adjust their labor supply: they take more parental leave and subsequently reduce full-time work, yet without significantly increasing weekday caregiving. These findings imply that childcare policies can reshape labor supply within households, leading to smaller aggregate labor supply effects than suggested by maternal responses alone.

JEL classification

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Keywords

public childcare, family policies, parental leave, paternal labor supply

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1. Introduction

With the birth of children, women experience significant setbacks in their labor market outcomes and take on a large share of care and housework obligations (Cortés and Pan, 2023, Kleven et al., 2025, Goldin et al., 2024). Despite some increases in fathers' involvement in domestic work over the last few decades, their participation in child-rearing remains low, and traditional full-time employment patterns persist (e.g. Feyrer et al., 2008, Kan et al., 2011, Bartova and Keizer, 2020). Thus, increasing fathers' involvement in childcare and promoting a more equitable reallocation of labor within households is widely seen as an important strategy to reduce persistent gender gaps in labor market outcomes (Raley et al., 2012, Kleven et al., 2019).[1]

Major family policies, such as childcare provision and parental leave, are designed to support mothers in balancing work and family (Olivetti and Petrongolo, 2017, for a review of the literature). Yet, evidence on whether these policies promote a more equitable division of child-rearing responsibilities within households – particularly by affecting fathers' labor supply and caregiving involvement – remains scarce. Much of the existing literature evaluates family policies through the lens of individual labor supply responses, primarily focusing on the contemporaneous effects on mothers (e.g. Corekcioglu et al., 2024, Lefebvre and Merrigan, 2008, Bauernschuster and Schlotter, 2015) and neglecting dynamic labor supply adjustments within households. Only a few studies focus explicitly on fathers, particularly on their responses to paternal leave. They document mixed or context-specific effects on their labor supply and caregiving responses within households (e.g., Ekberg et al., 2013, Kleven et al., 2024, Cools et al., 2015, Patnaik, 2019, Canaan et al., 2022). Subsidized childcare – one of the most important measures to support mothers in the labor market – and its effects on fathers' labor supply and caregiving have been barely studied.

In this paper, we shed light on the impact of subsidized childcare provision on the division of work and caregiving within the household, with a particular focus on fathers. We analyze the effects on labor supply and caregiving across different stages, from initial engagement through parental leave-taking to subsequent responsibilities in child-rearing

[1] Fathers' involvement has recently also been put forward as a key driver of fertility behavior in high-income countries (Doepke et al., 2023, Fanelli and Profeta, 2021, Goldin, 2025, Farré and González, 2019).

and household labor supply decisions. According to standard household decision-making models (see Almås et al., 2023, for an overview), the provision of universal, highly subsidized childcare relaxes childcare constraints and raises the opportunity costs of child-rearing for mothers. These changes can alter intra-household labor supply incentives and bargaining positions, leading to adjustments in the allocation of market work between partners, including changes in fathers' labor supply. Moreover, because households make forward-looking decisions, anticipated access to childcare may affect behavior already before children enter formal care. In particular, if mothers expect to return to work once childcare becomes available, couples may reallocate parental leave and adjust labor supply to facilitate this transition and to coordinate the demands of a dual-earner household. Such labor supply adjustments do not require a corresponding reallocation of unpaid caregiving tasks if gender norms or persistent household specialization constrain behavioral responses (e.g., Ichino and Olsson, 2023, Jessen et al., 2024).

Our empirical analysis primarily relies on rich individual-level data from the DJI Childcare Study (KiBS), which examines childcare needs and arrangements across different stages of childhood. The dataset includes about 128,000 observations of children under the age of three and their parents. For identification, we exploit a reform that expanded universal, subsidized early childcare in Germany, creating substantial temporal and spatial variation in childcare coverage at the county level. This variation is largely determined by observable predictors of local childcare demand, and idiosyncratic variation in the local supply of new childcare places stemming from lengthy and complex administrative processes when creating these places. We, along with previous studies (Bauernschuster et al., 2016, Felfe and Lalive, 2018, Sandner et al., 2024), argue that after accounting for regional fixed effects and demand-driven predictors, the remaining variation is orthogonal to changes in our main outcomes: fathers' parental leave, labor supply, and caregiving over early childhood.[2]

Our results first show that increased childcare availability substantially accelerates childcare entry and attendance during children's second and third year of life. This not

[2]Prior studies on the impact of the German childcare expansion, e.g., on fertility (Bauernschuster et al., 2016), child development (Felfe and Lalive, 2018), child maltreatment (Sandner et al., 2024), child health (Barschkett, 2026), and women's labor supply (Müller and Wrohlich, 2020), document the quasi-random component in the regional pace of expansion. We discuss the implications of recent findings of the new difference-in-differences literature (e.g., de Chaisemartin et al., 2024, Callaway et al., 2024, de Chaisemartin and D'Haultfœuille, 2023, 2020) in the empirical strategy Section 4.

only induces maternal labor supply responses but also dynamic adjustments in fathers' labor supply over early childhood: In the child's first year, fathers are more likely to take parental leave, reducing labor supply along the extensive margin. Parental leave adjustments are sizable: An increase in publicly subsidized childcare of 10 percentage points (pp) increases the share of fathers taking parental leave by 4.4 pp, with most of the increase concentrated in the two months following the child's first birthday. This increase mirrors a comparable reduction in mothers' leave beyond 12 months. Beyond the period of paid parental leave up until a child's third birthday, we find that fathers reduce their working hours, consistent with an intensive-margin adjustment in labor supply. In contrast, we find no significant effects on fathers' weekday caregiving involvement during this period. Complementary analyses of time-use data show modest shifts in daily schedules, such as later work start times that could be attributed to childcare drop-off, while mothers remain the primary caregivers during afternoons and evenings.

In line with the existing literature, mothers exhibit the largest labor supply responses to the childcare expansion, with significant increases in labor market participation and working hours. These impacts are concentrated among first-time mothers and mothers without a migration background. Overall, these patterns imply that subsidized childcare affects household labor supply as a joint outcome: increases in maternal employment are partially offset by reductions in fathers' labor supply, leading to a smaller net increase in aggregate household labor supply than suggested by maternal responses alone, while largely substituting for maternal caregiving rather than inducing sustained increases in paternal caregiving involvement.

Our paper contributes to the understanding of how family policies impact gender equality within households. In particular, it adds to two strands of the literature.

First, the existing literature on paternity leave policies, which documents mixed evidence regarding fathers' responses (for an overview, see Canaan et al., 2022). Some studies find no effects of paternity leave on fathers' caregiving involvement or on the allocation of labor supply between parents (e.g., Ekberg et al., 2013, Cools et al., 2015).[3] Other studies document increases in fathers' engagement in household chores or childcare following leave reforms (e.g., Kotsadam and Finseraas, 2011, Bünning, 2015, Patnaik, 2019,

[3]Ekberg et al. (2013) show that one month of exclusive paternity leave in Sweden increased fathers' time off work after birth without affecting fathers' subsequent take-up of leave to care for sick children.

Tamm, 2019, Eerola et al., 2022, González and Zoabi, 2026), though these effects are often limited to specific tasks or time frames, such as weekends.[4] Moreover, responses depend sensitively on the design of parental leave systems (e.g., Duvander et al., 2019, Canaan, 2022, Høgholm Jørgensen and Egholt Søgaard, 2024, Baertsch and Sandner, 2025).

Our analysis shifts the focus from paternity leave policies to universal childcare provision, a policy commonly regarded as effective in increasing maternal labor supply, and how it interacts with parental leave. As such, we explicitly address the question whether a sequencing of paid parental leave and childcare entitlement generates systematic reallocation of labor supply within households. We demonstrate that the provision of subsidized childcare increases fathers' parental leave take-up in early childhood while it reduces mother's leave substantially, aligning with institutional incentives. Despite increased paternal leave, the provision of subsidized childcare does not lead to increased paternal caregiving involvement later on. In the context of the paternal leave literature, our findings show that increased paternal leave does not always correspond with effects on fathers' later involvement. In relation to the literature on child penalties and the role of policy design in shaping gender inequality (Kleven et al., 2019, 2024), we show that coordinated and coherent family policies can alter labor supply decision at the household level; implying that gender gaps and child penalties are not solely driven by individual labor supply responses.

Second, our paper contributes to the evaluation of universal, publicly subsidized childcare policies by showing that focusing exclusively on maternal employment can provide an incomplete picture of the overall labor market effects. The literature thus far has mostly focused on how childcare prices, subsidies, and availability affect maternal labor supply and career trajectories (e.g., Gathmann and Sass, 2018, Lefebvre and Merrigan, 2008, Baker et al., 2008, Havnes and Mogstad, 2011, Bauernschuster and Schlotter, 2015, Kunze and Liu, 2019, Müller and Wrohlich, 2020, Huber and Rolvering, 2023, Duletzki and Lim, 2026), but typically abstract from dynamic labor supply responses of fathers. Furthermore, studies explore the effects of universal childcare on fertility (e.g., Bauernschuster et al., 2016), child development (e.g., Felfe and Lalive, 2018, Cornelissen et al.,

[4]Another set of studies examines the effects of paternity leave, or "fathers' quotas", on marital stability, producing mixed findings depending on the context (Avdic and Karimi, 2018, Olafsson and Steingrimsdottir, 2020, González and Zoabi, 2026).

2018, Blanden et al., 2016) or child maltreatment (e.g., Sandner et al., 2024). The few existing studies that touch upon fathers' labor market outcomes typically find small or no effects on paternal employment (Eckhoff Andresen and Havnes, 2019, Huebener et al., 2020, Brewer et al., 2022). In recent years, however, social norms have evolved considerably, as reflected in the rising share of fathers taking parental leave, potentially creating more scope for policies to impact paternal labor supply decisions (e.g., Kleven et al., 2024).

In line with that, our findings show that recent childcare expansion in a setting that specifically promotes early maternal labor market re-entry and paternal involvement through designated paid paternal leave, induce dynamic and economically meaningful adjustments in fathers' labor supply. These adjustments occur through increased parental leave-taking and reductions in working hours after childcare entry. By documenting these responses, our study highlights the importance of accounting for labor supply adjustments of both parents when evaluating the labor market effects of childcare policies. Moreover, our results show that changes in fathers' employment are not necessarily accompanied by corresponding increases in caregiving time, underscoring the distinction between labor supply responses and caregiving involvement within households.

2. Institutional Background and Potential Mechanisms

2.1. Parents' Labor Supply and Childcare Activities

Over the past 30 years, women's labor force participation has risen significantly in Germany. In the mid-1990s, the employment rate for women aged 15 to 64 was 55 percent; since then, it has increased by nearly 20 pp, reaching almost 74 percent in 2023.[5] However, mothers with children under three have much lower participation rates, with only 40 percent employed in 2024 — of whom nearly three-quarters work part-time. 91 percent of employed fathers with children in this age group work full-time (Statistisches Bundesamt, 2025).

The division of work within households is gendered and mothers provide the majority of childcare. Recent time-use data illustrate how childcare responsibilities are allocated

[5]Female employment rates, particularly for mothers, have historically been low in West Germany, despite the high level of education among women. East Germany has higher maternal employment rates, and women contribute more to household income compared to West Germany (Lippmann et al., 2020, Jessen et al., 2023). Maternal labor supply in both regions has converged in recent years.

within households. Mothers of children aged 12 – 35 months report an average of almost 4 hours of childcare per weekday as their main activity and 8.7 hours overall with the child – twice as much as fathers (own calculation, see Appendix Figure A.1). When the child attends childcare, mothers spend on average an hour less with childcare activities on a weekday (4.4 vs. 3.5 hours). Fathers' weekday childcare time, in contrast, varies little with childcare attendance (2.2 vs. 1.9 hours of childcare activities).[6] These descriptive patterns suggest that childcare expansion is unlikely to operate primarily through large reallocations of paternal weekday caregiving, and instead point toward adjustments along labor supply margins.

While the time survey shows that mothers are the main caregivers in most households, further survey evidence indicates that preferences for the division of childcare between parents differ from the actual allocation. Over 60 percent of mothers wish for childcare responsibilities to be equally divided, while only a quarter are actually sharing the task equally (see Appendix Figure A.2).

2.2. Parental Leave in Germany

Several recent family-oriented policies in Germany are designed to jointly support parents in balancing work and family life after childbirth by sequencing paid parental leave with a subsequent legal entitlement to subsidized childcare. Figure 1 illustrates this policy sequence over early childhood. Key initiatives were the substantial expansion of universal public childcare provision which we use for identification, and the introduction of a new parental leave system in 2006 (*Elterngeld*).

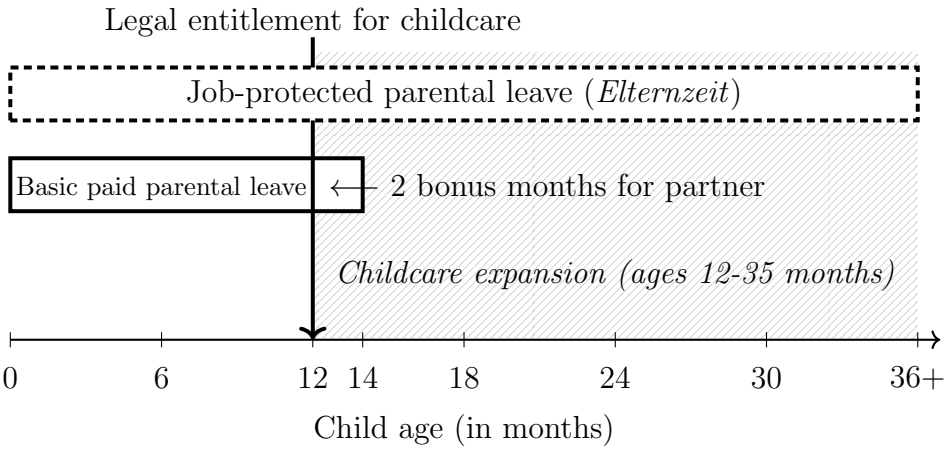
Paid parental leave benefits cover approximately 67 percent of net income from the 12 months prior to birth.[7] Under this system, couples can share up to 14 months of paid leave: each partner may claim a maximum of 12 months, with an additional two months granted if both parents take leave or in the case of lone parents.

On July 1, 2015, Elterngeld Plus was introduced, allowing parents to receive roughly half the monthly benefit over twice the duration, such that one month of baseline benefits corresponds to two months of Elterngeld Plus. The reform was designed to increase

[6]This finding aligns with Jessen et al. (2022), showing that differences in time spent on specific activities, such as reading, talking, and playing with the child, between children attending childcare and those not attending are relatively small.

[7]In total, parents can take up to 36 months of unpaid job-protected parental leave (*Elternzeit*).

Fig. 1: Sequencing of parental leave and childcare entitlement in Germany



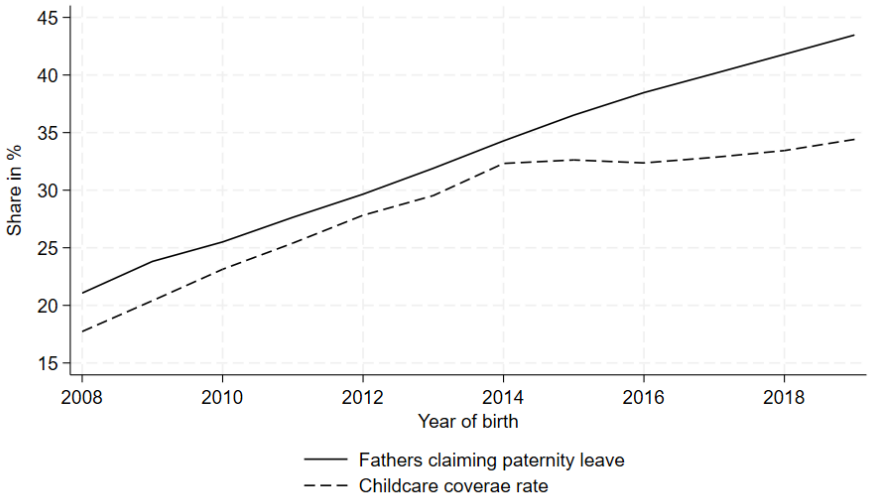
Note: The figure illustrates the institutional sequencing of family policies in Germany over early childhood. Paid parental leave is available for up to 14 months after childbirth in its basic form, with an option since 2015 to extend duration via Elterngeld Plus. Legal entitlement to subsidized childcare starts at the child's first birthday, the main phase of the childcare expansion targets children of ages 12 – 35 months.
Source: Own illustration.

flexibility, particularly for parents combining benefit receipt with part-time employment, and it introduced a partnership bonus that can extend benefit duration when both parents work part-time simultaneously. Recent empirical evidence shows that Elterngeld Plus increased maternal employment during the first year after childbirth and facilitated earlier labor market re-entry (Zimmert and Zimmert, 2024, Baertsch and Sandner, 2025), and affected fathers' labor supply and the intra-household division of childcare (Boll and Nikolka, 2024). For our setting, Elterngeld Plus expands the set of feasible leave–work combinations around the transition into childcare and may therefore reinforce couples' scope to coordinate parental leave and mothers' labor market re-entry around the child's first birthday.

Although an equal split of paid parental leave is possible, most couples allocate 12 months to mothers and only two months to fathers (see Panel A of Appendix Figure A.3); only 10 percent of fathers claimed more than two months in 2020. Fathers typically take leave immediately after birth and around the child's first birthday (Panel B of Appendix Figure A.3). We use fathers' parental leave-taking as an early and institutionally salient margin of fathers' labor supply adjustment during the first year after childbirth, rather than as a direct measure of caregiving involvement. We discuss in Section 2.4 why childcare provision may play an important role in shaping leave-taking decisions within couples.

Overall, the share of fathers claiming leave has been rising alongside the expansion of

Fig. 2: Childcare coverage rate for children under three and the share of fathers claiming parental leave benefits over time



Note: The figure plots the share of fathers claiming parental leave and the share of children below age three in childcare.
Source: Own calculations based on data from the Federal Statistical Office (Statistisches Bundesamt, 2020, 2023).

universal, highly subsidized childcare for children under the age of three (Figure 2).

2.3. The German Childcare Expansion

Childcare in Germany is accessible through a universal and highly subsidized system.[8] It is commonly provided in childcare centers, run either by the local government or by non-profit organizations and serve children from age one to when they enter school, usually at age six. Since the mid-2000s, children aged three until school entry have had high childcare coverage rates exceeding 90 percent, due to the universal childcare entitlement introduced in 1996 for this age group. In contrast, public childcare provision for children under the age of three remained severely rationed or virtually non-existent in West Germany until the mid-2000s. As of 2012, around 28 percent of children under the age of three were enrolled in public childcare, but 39 percent of parents stated a demand for childcare (Alt et al., 2013).

To improve the provision of public childcare for children under the age of three, Germany has passed major policy reforms. The 2005 *Tagesbetreuungsausbaugesetz* (*TAG*)

[8]Public subsidies cover approximately 70 percent of childcare costs, with the remainder covered by income-dependent parental fees. Parental fees, which make up five to ten percent of average earnings are lower than the OECD average and considerably lower than countries with limited public subsidies, such as the United States (OECD, 2023).

aimed at creating 230,000 additional slots in West Germany, while the 2008 *Kinderförderungsgesetz* (*KiföG*) committed states to gradual expansion and established a legal entitlement for children aged one to three from August 1, 2013. Both laws are key steps toward providing demand-oriented, high-quality childcare for children under three.[9] In consequence of these reforms, Germany experienced a substantial increase in childcare coverage rates for children under the age of three from below 5 percent in 2005 to around 36 percent in 2023 (Figure 2).

But the expansion did not happen uniformly across counties and time. On the contrary, Appendix Figures A.4 and A.5 illustrate considerable variation across counties and time in the level and speed of the expansion. It is also evident that there was no substantial convergence (in levels or expansion speed) between counties in West Germany; on the contrary, we observe a steady increase in the standard deviation (even within states) up until 2014 which stayed on high levels thereafter. The coverage rates are higher in East Germany compared to West Germany and show stronger convergence patterns. However, in both regions, there is substantial and meaningful within-region variation.

Despite the expansion, childcare demand always exceeded the supply of slots, resulting in substantial supply shortages, even at fine regional levels and in later years of the expansion (see Appendix Figure A.6 and Jessen et al., 2020). Appendix Figure A.6 also shows substantial variation in the amount of excess demand at a given level of childcare coverage, further strengthening the argument that variation in the county-level childcare coverage rate does not appear to reflect different equilibria between supply and demand of childcare, but rather captures the supply of places.

What were the factors driving the variation in the roll-out? As argued in other studies, the key factors determining the speed of the childcare expansion were not only some well-defined predictors of local demand used by local planning authorities but mainly shocks to the local supply of new childcare places emanating from lengthy and intricate administrative processes and rules (see e.g. Bauernschuster and Schlotter, 2015, Sandner et al., 2024, Müller and Wrohlich, 2020). Data on all childcare centers in Germany (see Appendix Figure A.7) indicates that until the mid-2010s, the increase in childcare cover-

[9]The main goal of the reforms was to improve the reconciliation of work and family life, allowing especially mothers to participate more in the labor market. The reforms also aimed to increase fertility and promote early child development. Fathers' involvement in childcare and family responsibilities is not explicitly named as a goal of the childcare expansion reforms.

age rate primarily occurred through the creation of new groups for children under three within existing centers serving older children. After that, the focus shifted to establishing new centers for all age groups. The process of establishing new centers and groups within existing centers involved various decisions by authorities at municipal, county, and state levels: municipal and county authorities assessed local demand for childcare, taking into account observable demographic factors such as cohort sizes and population movements, as well as economic factors like labor market conditions. Federal state and municipality authorities (mainly the Youth Welfare Office and the State Youth Welfare Office) were responsible for approving proposals for new childcare centers and groups within existing centers. This administrative process faced several obstacles, including varying levels of knowledge about the complex funding system involving the federal government, the federal state, and the municipality. Additionally, some regions suffered from shortages of construction land for new childcare centers, differing building regulations, a lack of qualified childcare workers, and delays in the approval of new centers.[10] As a consequence, the county-level variation in childcare expansion for children under three is largely described by two components: prediction-based component of local childcare demand, and idiosyncratic variation to the local supply of new childcare places stemming from lengthy and complex administrative processes when creating additional places. We, along with previous studies (Bauernschuster et al., 2016, Felfe and Lalive, 2018, Sandner et al., 2024), argue that the residual variation after accounting for regional characteristics and economic and demographic developments, is orthogonal to changes in our main outcome: fathers' labor supply decisions over early childhood. Note however, that we focus on slightly later expansion years than the previous literature.

This sequencing of family policies is central for understanding the dynamic labor supply responses of fathers and mothers that we study below.

2.4. Potential Mechanisms

To understand how subsidized childcare may affect fathers' labor supply, we consider how parents allocate time between market work and childcare within the household in a simple collective household model outlined in Appendix A.3. Childcare availability relaxes the household childcare constraint and increases the expected returns to maternal labor

[10] Strict state-level regulatory requirements regarding staff qualifications, hygiene standards, and space constraints further slowed expansion.

market attachment, strengthening mothers' bargaining position within the household (Becker, 1974, Almås et al., 2023). In forward-looking households, these changes may induce dynamic labor supply responses even before childcare entry.

In the German context, the interaction between parental leave and childcare timing generates coordination incentives. Basic paid parental leave benefits are effectively capped at 12 months for the primary claimant (usually the mother), after which further leave is unpaid.[11] While parents must commit to leave plans early, the allocation of childcare places is often characterized by high uncertainty and short-notice notifications (Reischmann et al., 2021).[12]

With increased childcare availability, mothers' return to work around month 12 becomes a credible expectation. This raises the value of fathers' two "bonus months" of paid parental leave. Rather than serving only as a temporary buffer for missing childcare, fathers' leave may be used strategically to coordinate the household's transition into the childcare system. In Germany, childcare entry typically involves a pedagogical transition phase (*Eingewöhnung*) that lasts several weeks and requires a parent's presence for varying intervals. As mothers shorten their leave durations in anticipation of returning to work, fathers may increase their extensive-margin leave-taking to help manage this transition.

After the child has entered childcare, the household's time allocation problem changes again. While formal childcare reduces the amount of direct parental care required, the transition to a dual-earner household generates new coordination tasks such as drop-offs, pick-ups, and schedule synchronization with childcare opening hours. In the German setting, fathers typically already work full-time prior to childcare expansion, leaving limited scope for further increases in labor supply. As a result, these coordination demands may be accommodated through modest reductions in fathers' working hours.

However, fathers' direct caregiving involvement at home may not necessarily respond.

[11] The introduction of *Elterngeld Plus* in 2015 further expanded the set of feasible coordination strategies by allowing parents to combine benefit receipt with part-time work and extend benefit duration through lower monthly payments. This reform increases flexibility around the transition into childcare and reinforces the scope for labor supply adjustments within couples.

[12] Women must declare the duration of their parental leave seven weeks before starting and commit to a plan for the two years following childbirth. Changes typically require employer approval, while childcare allocation often occurs at short notice and allocation mechanisms are highly inefficient (e.g. Reischmann et al., 2021). At 11 months of age, 83 percent of parents have applied for a childcare slot, while only about half have received confirmation without yet attending (Appendix Figure A.8).

Unlike housework, childcare is not generally perceived as an undesirable activity to be avoided. Mothers, in particular, often value time spent on educational or recreational caregiving (Krueger, 2009). Empirical evidence suggests that when mothers increase employment, they tend to reduce housework more than childcare time (Bastian and Lochner, 2022). If mothers prioritize maintaining "quality time" with their children and fathers' caregiving time remains relatively inelastic, the expansion of public childcare will primarily substitute for maternal time without inducing paternal substitution.

In addition, persistent gender norms often designate caregiving as the maternal domain while fathers' identity remains closely tied to full-time market work (Townsend, 2002, Jessen et al., 2024). "Maternal gatekeeping", the reluctance of mothers to relinquish control over domestic responsibilities, may limit fathers' involvement in direct caregiving even further (Allen and Hawkins, 1999). Consequently, fathers may support the household's transition toward a dual-earner arrangement primarily through adjustments in their labor supply (for example through schedule flexibility to manage drop-offs) rather than through increases in direct childcare time at home.

Taken together, these mechanisms suggest distinct timing patterns in parental labor supply. We expect an increase in paternal leave-taking around the end of the first year of life, when the transition into childcare typically occurs. Following childcare entry (ages 12–35 months), fathers may reduce their working hours to accommodate the coordination demands of a dual-earner household. At the same time, increased childcare availability should shorten maternal leave durations and increase maternal employment. Overall, these responses primarily reflect labor supply adjustments rather than changes in caregiving preferences, implying limited effects on fathers' weekday childcare involvement.

3. Data

Our empirical analyses combine large, representative survey data on parents and children from the DJI Childcare Study (KiBS; Lippert et al., 2024) with county-level administrative data on childcare coverage rates from the Child and Youth Welfare Statistics (Statistisches Bundesamt, 2023). We describe both data sources in detail below. Descriptive statistics of all variables used in the analysis are provided in Appendix Tables A.1 and A.2.

3.1. DJI Childcare Study (KiBS)

The Childcare Study (KiBS) by the German Youth Institute (DJI) is a large, representative survey of parents and children that has been conducted since 2012 (Lippert et al., 2024). It provides rich information on care arrangements, parental leave-taking, parental employment, and the division of childcare responsibilities within households. Each wave surveys more than 33,000 parents of children from birth until their transition to secondary school.[13] This results in approximately 128,000 observations of children below the age of three. Survey responses are provided by one parent of the focal child, predominantly the mother (89 percent). Respondents report information about themselves and their partner if they indicate being in a relationship.[14]

Our empirical analyses use information from eleven survey waves conducted between 2012 and 2022. The main analysis focuses on children aged 12 to 35 months at the time of the interview — the age range for which children gained a legal entitlement to a childcare place in 2013. We additionally exploit retrospective information, in particular on parental leave-taking. The combined samples include children born between 2007 and 2021, who were exposed to substantial variation in childcare availability across counties and over time.

To estimate the impact of the universal childcare expansion on parents' labor supply decisions and the associated allocation of caregiving within households, we study four sets of outcomes. First, we estimate the effects of the childcare expansion on individual-level childcare attendance to identify which age groups and families are affected by the reform. A key advantage of the KiBS data is that, unlike most prior studies exploiting the German childcare expansion (Bauernschuster and Schlotter, 2015, Sandner et al., 2024, Müller and Wrohlich, 2020), we directly observe childcare attendance at the individual level. This allows us to validate the first-stage relationship between childcare availability and take-up. Moreover, mapping age-specific changes in attendance to corresponding outcomes underlines the credibility of our empirical design.

Second, we examine fathers' parental leave take-up as an indicator of an early labor

[13]The sampling follows a two-stage design and includes families from 428 randomly selected municipalities.

[14]While the partner need not be the biological parent, supplementary information available in selected waves shows that the partner is the biological parent in 99 percent of cases in our sample. Approximately 4 percent of respondents report being single.

supply adjustment by fathers around childbirth, which may shape subsequent labor supply trajectories within the household. We use (i) an indicator for whether the father claimed parental leave for a given child and analyze the duration of leave for both parents. Fathers' leave duration is categorized into (ii) taking exactly the two bonus months and (iii) taking more than two months, while mothers' leave duration is categorized into (iv) taking exactly 12 months and (v) taking more than 12 months. This information is reported retrospectively for children born between 2007 and 2020.

Third, we assess parental labor supply responses at both the extensive and intensive margins to obtain a comprehensive picture of time allocation decisions within households. At the extensive margin, we look at (i) an indicator capturing employment. At the intensive margin, based on actual hours worked, we consider (ii) an indicator of full-time employment (working more than 34 hours a week), (iii) an indicator for long part-time employment (20 to 34 hours), and (iv) an indicator for short part-time employment (less than 20 hours). We examine employment outcomes for both mothers and fathers in the second and third year after childbirth (birth years 2009-2021). These margins correspond directly to the labor supply adjustments discussed in Section 2.4, including extensive-margin leave-taking and intensive-margin reductions in working hours.

Fourth, we examine the division of childcare responsibilities within households when children are between 12 and 35 months old, the ages for which the childcare expansion had the strongest effects (birth years 2011-2021). Respondents assess the division of weekday childcare on a five-point scale ranging from 1 (solely the mother) to 5 (solely the father). We use this measure in continuous form, as categorical indicators, and as a binary indicator equal to one if the mother is the sole or main caregiver, and zero if childcare is shared equally or primarily undertaken by the father. Focusing the division on a typical weekday is particularly informative and of policy relevance, as this is when parents must reconcile childcare responsibilities with work commitments. This measure may not reflect subtler reallocations of tasks or weekend involvement. In our sample, mothers are the main caregivers on weekdays in 66 percent of households.

Other measures of the division of childcare are not consistently available across survey waves. Nevertheless, Appendix Table A.3 shows that our main measure is strongly correlated with related indicators observed in selected waves, including satisfaction with the division of childcare, attitudes toward the preferred allocation of care, and the proximity

of the childcare center to the father's workplace.

3.2. Administrative Regional Data

Our main independent variable is county-level administrative data on childcare coverage rates provided by the Federal Statistical Office (Statistisches Bundesamt, 2023). The childcare coverage rate is defined as the number of children under the age of three enrolled in public childcare relative to the total population in this age group within a county and year.

Since 2006, childcare centers have been required to report the number of enrolled children to local authorities as of March 1st each year. Due to persistent excess demand for childcare — even at fine regional levels and in later years of the expansion (see Appendix Figure A.6 and Jessen et al., 2020) — the number of enrolled children closely approximates the number of available childcare places for children under three.[15]

To account for time-varying regional heterogeneity and observable determinants of local childcare demand considered by planning authorities, we include a rich set of county-level control variables. These data are drawn from the regional database maintained by the German Statistical Office and the Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR) (INKAR; Bundesinstitut für Bau-, Stadt- und Raumforschung, 2023).

4. Empirical Approach

To identify the effects of universal childcare provision for children under three on fathers' labor supply and caregiving involvement, we leverage substantial variation in childcare coverage generated by the legally mandated expansion of childcare slots for children below the age of three beginning in 2008 and the introduction of a universal entitlement to a childcare place from age one onward starting in 2013.

The pace of expansion differed substantially across counties and unfolded gradually over time, generating continuous variation in local childcare coverage. We exploit this variation with a two-way fixed effects (TWFE) model of the following form:

$$y_{ijb(m)} = \alpha + \delta cr_{j,b+1} + \mathbf{X}'_{ijb}\beta_1 + \mathbf{Z}'_{j,b+1}\beta_2 + \gamma_j + \theta_b + (\mu_m) + \varepsilon_{ijb(m)} \tag{1}$$

[15]Prior to 2006, childcare statistics were collected at four-year intervals and reported the number of places by age group. Population counts refer to December 31st of the preceding year.

where $y_{ijb(m)}$ denotes outcomes for focal child i in county j born in year b, observed at age m months, if applicable. Outcomes include childcare attendance, as well as fathers' parental leave, labor supply and caregiving on weekdays over early childhood. The treatment variable $cr_{j,b+1}$ is the childcare coverage rate for children under three in county j one year after birth, corresponding to the year in which children become legally entitled to a childcare slot. The coefficient of interest, δ, captures the marginal effect of a one percentage point increase in childcare availability on these outcomes.

The vector X_{ijb} includes individual-level controls (parental education, their age at childbirth and its square, child gender, and migration background). To support the conditional parallel trends assumption, we include time-varying county characteristics capturing demographic composition, economic conditions, and local gender norms. For example, higher-educated populations may both demand greater childcare expansion and exhibit more egalitarian divisions of labor (e.g., Davis and Greenstein, 2009, Raz-Yurovich and Okun, 2024). Similarly, urbanization and political preferences may correlate with both childcare provision and parental labor supply. The vector $Z_{j,b+1}$ contains time-varying county characteristics measured concurrently with the childcare coverage rate, including the share of women and men with *Abitur*, population density, migration share, the conservative vote share[16], GDP per capita, and population shares by age groups. In extended specifications, we additionally control for county-level fiscal capacity (debt and tax revenues), net migration, all-day childcare coverage rate, and allow for differential trends by interacting pre-expansion childcare coverage rates with year fixed effects following Blanden et al. (2016) (Section 5.7).

County fixed effects (γ_j) account for time-invariant regional differences, and birth-year fixed effects (θ_b) control for common cohort shocks. For outcomes observed at different child ages, we include age-in-month fixed effects (μ_m). The i.i.d. error term is denoted by $\varepsilon_{ijb(m)}$. Standard errors are clustered at the county level.

The identification of δ stems from within-county changes in childcare coverage across birth cohorts over time, net of common cohort shocks. Importantly, the childcare expansion occurred at different speeds across counties, creating substantial cross-county heterogeneity in the timing and magnitude of coverage growth, even within federal states.

[16]We group vote shares for the CDU and AfD as all other major parties are associated with more liberal family policies.

Thus, our estimand is the average marginal effect of increased local childcare availability on parental outcomes. A central concern in this setting is that counties that experience stronger changes in gender norms, labor market conditions, or demographic composition both expand childcare more rapidly and exhibit different trends in parental outcomes, estimates of δ may be confounded.

Our TWFE approach aligns with the empirical strategy used in the literature evaluating the German childcare expansion (Bauernschuster et al., 2016, Müller and Wrohlich, 2020, Felfe and Lalive, 2018, Cornelissen et al., 2018, Sandner et al., 2024). These studies document that, after accounting for regional fixed effects and observable economic and demographic developments, the remaining differential coverage growth across counties is largely driven by administrative bottlenecks and supply-side constraints.

Our empirical strategy addresses this concern first by including a rich set of time-varying county characteristics measured contemporaneously with childcare coverage, capturing key observable determinants of local childcare demand and parental labor supply. These controls absorb systematic differences in economic conditions, demographic composition, and local gender norms that may jointly influence childcare provision and household labor supply.

Second, we decompose the determinants of childcare expansion at the county level. Regional and time fixed effects account for 97 percent of the overall variation in childcare coverage; the observable time-varying county characteristics of our main specification explain about one fourth of the remaining variation. As argued by the previous literature, the residual component shown in Appendix Figure A.9 can likely be attributed to idiosyncratic administrative challenges of counties.

We validate the treatment measure directly using individual-level attendance data. As we will demonstrate in Figure 3, increases in county-level childcare coverage correspond to higher individual childcare attendance specifically within the age window in which children become legally entitled to a slot (12–35 months), while no effects are observed before age one or after age three. The fact that coverage affects attendance only within the legally relevant age window provides indirect evidence in favor of the conditional parallel trends assumption. It supports the interpretation that the identifying variation reflects exogenous shifts in effective childcare access tied to institutional eligibility, rather than spurious correlations with broader county trends.

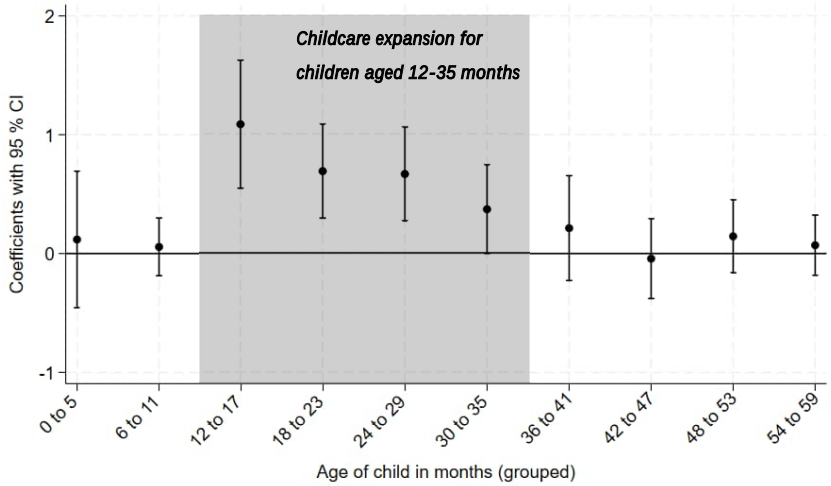
Under the assumption that, absent differential childcare expansion, parental outcomes would have evolved in parallel across counties conditional on fixed effects and observable time-varying characteristics, δ identifies the causal effect of increased childcare availability on parental outcomes.

Recent work highlights potential biases of TWFE estimators in staggered-adoption settings with heterogeneous treatment effects (e.g., Goodman-Bacon, 2021, Sun and Abraham, 2021, Callaway and Sant'Anna, 2021, de Chaisemartin and D'Haultfœuille, 2023). These concerns stem from settings with discrete treatment adoption and well-defined event time, where treatment effects may vary across cohorts and periods.

Our setting differs in two important respects. First, treatment intensity evolves continuously rather than through discrete adoption events. Households respond to the level of available childcare at the time of entitlement rather than to a binary policy switch. Second, the expansion was largely monotonic, so there is no sharp adoption margin that would allow for clean switcher-based comparisons. Modern difference-in-differences estimators are primarily designed to recover effects of discrete treatment changes across groups and periods. In our setting, treatment evolves gradually. Discretizing childcare coverage into binary treatment indicators would require arbitrary thresholds and would mechanically collapse meaningful within-county variation in expansion intensity into coarse categories and thereby alter the estimand. Moreover, estimators based on discrete treatment changes or switcher comparisons would primarily exploit short-run changes in coverage, whereas our economic mechanism implies that households respond to the level of available childcare at entitlement rather than to marginal year-to-year fluctuations.

Accordingly, our design estimates the average marginal effect of childcare availability at the time of entitlement. A TWFE specification with continuous treatment directly maps the identifying variation into this marginal effect estimand of interest. While this approach assumes constant marginal effects across regions and over time, we assess the sensitivity of our results to alternative specifications and additional controls in Section 5.7. Across these exercises, the magnitude, timing, and margins of effects remain stable.

Fig. 3: Effects of childcare expansion for children under age three on childcare attendance



Notes: Coefficient estimates with 95% CI of the childcare rate on childcare attendance from separate estimations of eq. 1 by age. All models include county and birth year fixed effects, as well as individual-level and county-level controls (see Appendix Table A.2). At 12 months old, children gain legal entitlement to a childcare slot. Paid parental leave expires after a maximum of 14 months. The childcare expansion is targeted to increase childcare slots for children between 12 and 35 months.
Source: Own illustration based on data from the KiBS (Lippert et al., 2024), the Federal Statistical Office (Statistisches Bundesamt, 2023), and INKAR (Bundesinstitut für Bau-, Stadt- und Raumforschung, 2023).

5. Results

We begin by examining how the childcare expansion translated into actual childcare attendance. We then turn to the dynamic parental responses predicted by the mechanisms discussed above, starting with leave decisions in the first year after birth and then examining labor supply adjustments after children become eligible for universal childcare.

5.1. Effects of Childcare Expansion on Children's Childcare Attendance

We begin by examining how the childcare expansion affected children's childcare attendance in our representative survey data.[17]

Figure 3 presents estimates separately by children's age at the time of the interview. The effects are close to zero below age one, become statistically significant immediately after the first birthday, and persist until age three. This pattern indicates that the expansion significantly accelerated children's entry into childcare between age 12 and 35 months.

[17]Most prior studies exploiting the German childcare expansion rely on reduced-form outcomes and cannot directly observe childcare take-up (Bauernschuster et al., 2016, Müller and Wrohlich, 2020, Sandner et al., 2024). Felfe and Lalive (2018) infer childcare entry from "years in childcare" reported at school entry examinations and further assumptions on the timing of childcare entry. Our data allow us to directly examine how the expansion translated into actual childcare attendance.

The estimated magnitudes are economically meaningful. In particular, at ages 12 to 29 months, a one percentage point increase in childcare coverage raises attendance by 0.7–1.1 pp. Although the estimated effects of childcare expansion on attendance are sizable, they are expectedly smaller than a mechanical one-to-one mapping.[18] This finding reflects the severe supply shortage of childcare for children aged one and two years. In contrast, childcare attendance of children below age one and above age three remains unaffected by the expansion.

These age-specific effects closely align with the institutional framework. Parents are eligible for parental leave benefits for up to 14 months after childbirth, and children only gain legal entitlement to a childcare place after their first birthday. Consequently, demand for childcare in the first year after childbirth is low, and the expansion primarily affects attendance once paid leave eligibility expires. This alignment between institutional rules and observed take-up provides strong support for our identification strategy, which focuses on childcare eligibility for children between the ages of one and under three.

Aggregating across ages, we find that for children aged 12 to 35 months, a 10 pp increase in childcare availability raises childcare attendance by 6.4 pp (Appendix Table A.4, Column 1).[19]

5.2. Effects on Fathers' Parental Leave Take-Up

We next examine fathers' parental leave take-up, the earliest labor supply margin through which fathers could adjust to increased childcare availability after the child's first birthday.

Table 1, Column 1, shows that the expansion of childcare had a positive effect on the take-up of fathers' parental leave. An increase in publicly subsidized childcare of 10 pp increases the share of fathers taking parental leave by 4.4 pp.[20] Most of the increase ac-

[18]The expansion relaxes access constraints but does not mandate take-up, implying heterogeneous responses across families. Moreover, increased availability may induce substitution from informal or private childcare arrangements into the subsidized system, attenuating net increases in observed attendance rates. Last, county-level expansion measures may not perfectly align with individual attendance decisions due to cross-county childcare use. The estimates capture average behavioral responses to increased childcare availability rather than a mechanical capacity–attendance relationship.

[19]We also examine changes at the intensive margin of childcare attendance in Appendix Table A.5. The expansion primarily increases full-time attendance, while attendance of less than 35 hours remains largely unchanged (Appendix Table A.5, Columns 2–4).

[20]As we use regional childcare availability (an intention-to-treat design), we estimate reduced-form effects on fathers' leave-taking rather than effects of individual childcare attendance. However, by utilizing our first-stage results from Appendix Table A.4, Column 1, we can consider the childcare expansion

Table 1: Effects of childcare expansion on parental leave take-up and length

	Dependent variables				
	Fathers' parental leave			Mothers' parental leave	
	Take-Up	Exactly two months	More than two months	Exactly 12 months	More than 12 months
	(1)	(2)	(3)	(4)	(5)
Childcare coverage below 3 years	0.442***	0.340***	-0.016	0.312***	-0.304***
	(0.107)	(0.107)	(0.104)	(0.113)	(0.103)
Observations	67,739	67,739	67,739	61,336	61,336
Mean of dep. var	0.528	0.365	0.139	0.451	0.354
SD of dep. var	0.499	0.482	0.346	0.498	0.478

Notes: All models include county and birth year fixed effects, as well as individual-level and county-level controls (see Appendix Table A.2). All dependent variables are measured retrospectively. Robust standard errors clustered at the county level are given in parentheses. *** p<0.01, ** p<0.05, * p<0.1.
Source: Own calculations based on data from the KiBS (Lippert et al., 2024), the Federal Statistical Office (Statistisches Bundesamt, 2023), and INKAR (Bundesinstitut für Bau-, Stadt- und Raumforschung, 2023).

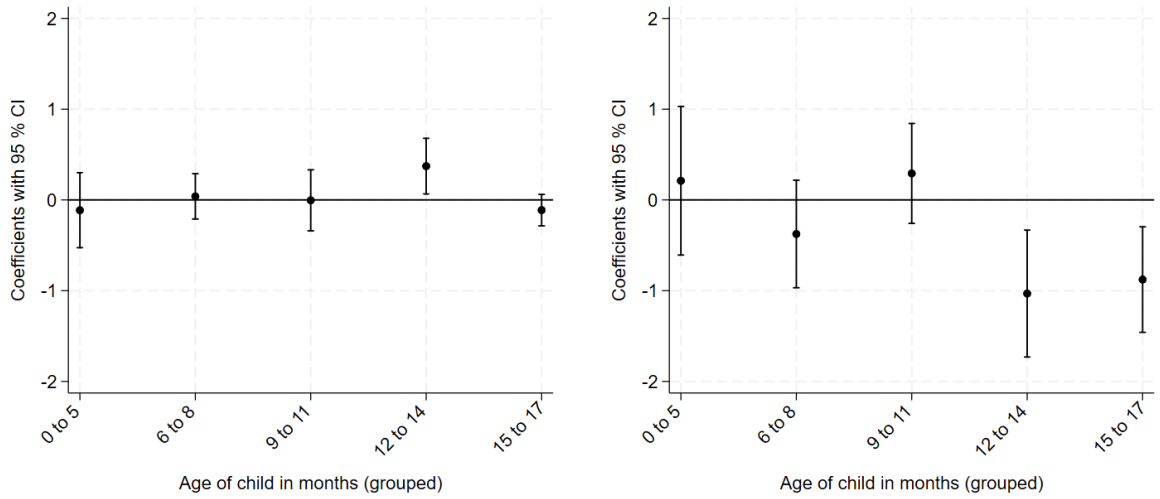
crues to fathers taking parental leave for two months (Column 2), which corresponds to the two bonus months paid if both parents claim some leave. The effect on parental leave longer than two months is, however, small and even negative (Column 3). The increased flexibility introduced by Elterngeld Plus after 2015 likely facilitated these adjustments by allowing fathers to combine short periods of leave with part-time work around childcare entry, though our estimates capture reduced-form responses to childcare availability rather than reform-specific effects.

For mothers, we find a significant decrease in leave-taking of more than 12 months of about 3 pp if provision of childcare increases by 10 pp (Column 5). Leave-taking of exactly 12 months, on the other hand, increases by a similar amount (Column 4).

Figure 4 shows that the effects on paternal leave are concentrated when the child is about 12 – 14 months old (Panel A), the time period during which parental leave of mothers is significantly reduced (Panel B) and where we see the largest responses in childcare take-up. Given the substantial uncertainty around the timing of childcare admission (see Section 2.4), this behavior likely reflects mothers adhering to their plan of returning to work once the maximum paid leave period ends, while fathers take over the daycare transition during their own leave – a process that typically lasts several weeks

as an instrument for childcare attendance and scale our reduced form findings accordingly. Regarding the impact on fathers' parental leave take-up, we find that if the child attends childcare at age 12 to 35 months, the probability of fathers claiming parental leave rises by 69 pp.

Fig. 4: Effects of childcare expansion for children under 18 months on parental leave take-up



A: Father currently on parental leave

B: Mother currently on parental leave

Notes: Coefficient estimates with 95% CI of the childcare rate on parental leave take-up. Estimates stem from separate estimations of eq. 1 by age. All models include county and birth year fixed effects, as well as individual-level and county-level controls (see Appendix Table A.2).
Source: Own illustration based on data from the KiBS (Lippert et al., 2024), the Federal Statistical Office (Statistisches Bundesamt, 2023), and INKAR (Bundesinstitut für Bau-, Stadt- und Raumforschung, 2023).

and is increasingly assumed by fathers.

5.3. Effects on Fathers' Labor Supply Responses over Early Childhood

Fathers' leave responses around the child's first birthday suggest that childcare expansion first affects paternal labor supply through leave-taking. We now turn to fathers' subsequent employment responses after children become eligible for universal childcare, when paid parental leave has largely expired and coordination demands shift. We assess fathers' labor supply responses to the expansion of childcare in Table 2.

For fathers of children aged 12 to 35 months, we find no evidence of extensive-margin employment effects (Column 1). However, Columns 2 and 3 indicate an intensive-margin shift from full-time to long part-time work. Scaled to a 10 pp increase in childcare coverage, the estimates imply a reduction in full-time employment of about 1.8 pp and an increase in long part-time employment of about 1.7 pp. While modest in absolute terms, this shift is sizeable relative to the low baseline share of fathers working part-time.[21] Time-use patterns reported in Appendix Figures A.11 suggest that these adjustments may reflect childcare logistics, such as fathers starting work later after dropping children

[21] Appendix Figure A.10 reports the findings by children's age.

Table 2: Effects of childcare expansion on fathers' employment (children aged 12 – 35 months)

	Dependent variables:			
	Extensive (> 0 hours) (1)	Full-time (> 34 hours) (2)	Part-time (long) (20 – 34 hours) (3)	Part-time (short) (1 – 19 hours) (4)
Fathers' employment				
Childcare coverage below 3 years	0.018 (0.053)	-0.176** (0.086)	0.169*** (0.063)	0.025 (0.025)
Observations	82,712	82,712	82,712	82,712
Mean of dep. var	0.952	0.867	0.073	0.012
SD of dep. var	0.215	0.340	0.260	0.109

Notes: All models include county and birth year fixed effects, as well as individual-level and county-level controls (see Appendix Table A.2). All dependent variables are measured when children are 12 – 35 months old. Robust standard errors clustered at the county level are given in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Own calculations based on data from the KiBS (Lippert et al., 2024), the Federal Statistical Office (Statistisches Bundesamt, 2023), and INKAR (Bundesinstitut für Bau-, Stadt- und Raumforschung, 2023).

off at daycare.

5.4. Benchmark: Effects on Mothers' Labor Supply

To interpret the paternal responses documented so far, we now examine mothers' labor supply adjustments. These estimates serve as a benchmark for the strength and timing of maternal re-entry, which is the key mechanism underlying both fathers' leave-taking around the first birthday and their subsequent employment responses.

We begin by asking whether childcare availability shifts mothers' *expected* timing of labor market re-entry, since such expectations are central to the anticipatory leave adjustments documented above. Using an indicator for whether mothers report intending to return to work within the next six to twelve months, we find that higher childcare coverage significantly accelerates planned re-entry. A 10 pp increase in childcare availability raises the probability that mothers plan to return to work within the first two years by 2.7 pp (δ=0.268, s.e. 0.143, sample children aged 0 – 35 months). This finding supports the forward-looking decision making of households. Increased childcare availability appears to shift mothers' intertemporal planning and to reduce uncertainty about post-leave employment prospects.

Consistent with these shifts in planned re-entry, we observe subsequent realized maternal labor supply responses at both the extensive and intensive margin (Table 3): If childcare rates increase by 10 pp, mothers' employment increases by 4.3 pp (Column 1).

Table 3: Effects of childcare expansion on mothers' employment (children aged 12 – 35 months)

	Dependent variables:			
	Extensive (> 0 hours) (1)	Full-time (> 34 hours) (2)	Part-time (long) (20 – 34 hours) (3)	Part-time (short) (1 – 19 hours) (4)
Mothers' employment				
Childcare coverage below 3 years	0.428*** (0.119)	0.226** (0.095)	0.296** (0.121)	-0.095 (0.086)
Observations	92,497	92,497	92,497	92,497
Mean of dep. var	0.642	0.211	0.328	0.103
SD of dep. var	0.480	0.408	0.470	0.304

Notes: All models include county and birth year fixed effects, as well as individual-level and county-level controls (see Appendix Table A.2). All dependent variables are measured when children are 12 – 35 months old. Robust standard errors clustered at the county level are given in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Own calculations based on data from the KiBS (Lippert et al., 2024), the Federal Statistical Office (Statistisches Bundesamt, 2023), and INKAR (Bundesinstitut für Bau-, Stadt- und Raumforschung, 2023).

This increase is primarily driven by an increased probability to work full-time of about 2.3 pp (Column 2) and longer part-time hours of about 3 pp (20 – 34 hours, Column 3) when increasing childcare provision by 10 pp.[22]

Taken together, the evidence on mothers' planned and realized re-entry helps explain why fathers adjust their parental leave around the child's first birthday and subsequently reduce working hours after childcare entry, in line with the coordination mechanisms discussed in Section 2.4.

The results are consistent with other evidence on positive effects of universal childcare provision on maternal labor supply (Lefebvre and Merrigan, 2008, Bauernschuster and Schlotter, 2015, Müller and Wrohlich, 2020, Duletzki and Lim, 2026).[23] We also examine parental employment outcomes at later child ages (up to age 10) and find small positive effects on mothers' intensive labor supply margin in the long-run, but no statistically

[22]Predicted probabilities of ordered logit models using these different employment outcomes as categorical variable are shown in Appendix Figure A.12 and align with results from separate regressions in Table 3.

[23]Depending on the context, the provision of childcare subsidies or universal childcare can also have very small effects on maternal employment. For example, Havnes and Mogstad (2011) find that the large-scale expansion of subsidized childcare in Norway did not increase maternal employment, but mainly crowded out informal childcare arrangements. Givord and Marbot (2015) find that a 50 percent subsidy to childcare spending introduced in France had only a marginal impact on female labor force participation. Note that results in Müller and Wrohlich (2020) who examine the effects of the childcare expansion in Germany, find the strongest effects on mothers' employment participation and extended part-time employment; yet they do not find effects on maternal full-time employment or reductions in short part-time as we do. These differences are likely due to the different expansion periods considered.

or economically meaningful effects on fathers' labor supply beyond age 3 (Appendix Table A.6).

Overall, our results highlight that assessing the aggregate labor supply effects of childcare expansion requires considering mothers' responses alongside those of fathers. While the expansion substantially increases maternal employment, fathers adjust their own labor supply in response to the transition toward a dual-earner household. Appendix A.4 provides a simple back-of-the-envelope calculation translating the estimated employment effects into changes in weekly hours worked. Using representative hours for full-time and part-time employment, a 10 pp increase in childcare availability raises maternal labor supply by roughly 1.5 hours per week, while fathers' reductions in full-time employment reduce paternal labor supply by about 0.2 hours. Paternal adjustments therefore offset about 12 percent of the maternal increase in hours worked, implying that the net increase in aggregate household labor supply is smaller than suggested by maternal responses alone.

5.5. Heterogeneity in Labor Supply and Leave Responses

Having established that childcare expansion reallocates labor supply within households, we next examine whether these leave-taking and labor supply responses vary systematically across families. We examine heterogeneity along three dimensions closely related to labor supply incentives and access constraints: maternal education, migration background, and whether the child is firstborn. These dimensions are also characterized by substantial baseline differences in childcare use, with lower attendance rates among children of less-educated parents and families with a migration background despite stated demand for care (Jessen et al., 2020, Huebener et al., 2023). Table 4 reports results for key outcomes. Interaction terms capture differential responses relative to the reference group and must therefore be interpreted jointly with the main effect.

Panel A reveals pronounced heterogeneity by maternal education. Among households in which the mother does not hold a university entrance qualification (*Abitur*), increases in childcare availability substantially raise childcare attendance and induce strong labor supply adjustments: fathers are less likely to work full-time, mothers' employment increases, fathers are more likely to take the two bonus months of parental leave, and mothers shorten leave durations beyond 12 months. For households with higher-educated mothers, these responses are significantly attenuated. Joint interpretation of the coefficients

Table 4: Heterogeneity in labor supply and leave responses to childcare expansion

	Dependent variables				
	Childcare attendance	Father took 2 months of leave	Mother took > 12 months of leave	Father works full-time	Mother is employed
	(1)	(2)	(3)	(4)	(5)
Panel A: By mothers' education					
Childcare Coverage	1.004***	0.370***	-0.381***	-0.214**	0.509***
	(0.143)	(0.109)	(0.109)	(0.084)	(0.123)
Coverage × Mother	-0.441***	-0.038	0.160***	0.058**	-0.089**
has *Abitur*	(0.036)	(0.031)	(0.036)	(0.027)	(0.045)
Observations	85,280	63,722	57,612	78,446	88,244
Panel B: By parent's migration background					
Childcare Coverage	0.676***	0.349***	-0.319***	-0.149*	0.470***
	(0.139)	(0.105)	(0.103)	(0.087)	(0.117)
Coverage × At least	-0.199***	-0.114**	0.096**	-0.180***	-0.265***
one parent born abroad	(0.055)	(0.048)	(0.049)	(0.040)	(0.045)
Observations	93,541	67,739	61,336	82,712	92,497
Panel C: By child being firstborn					
Childcare Coverage	0.578***	0.321**	-0.149	-0.184*	0.364***
	(0.151)	(0.134)	(0.124)	(0.094)	(0.133)
Coverage × Child	-0.044	-0.089***	-0.041	0.001	-0.087***
is firstborn	(0.030)	(0.030)	(0.031)	(0.021)	(0.030)
Observations	79,613	56,717	51,328	71,976	78,784

Notes: All models include county and birth year fixed effects, as well as individual-level and county-level controls (see Appendix Table A.2). In Columns 1 and Columns 4 to 5, children are 12 – 35 months old at time of outcome measurement. For Columns 2 and 3, outcomes are measured retrospectively. Robust standard errors clustered at county level are given in parentheses. *** p<0.01, ** p<0.05, * p<0.1.
Source: Own calculations based on data from the KiBS (Lippert et al., 2024), the Federal Statistical Office (Statistisches Bundesamt, 2023), and INKAR (Bundesinstitut für Bau-, Stadt- und Raumforschung, 2023).

implies that childcare expansions continue to affect higher-educated households, but with smaller marginal effects, consistent with higher baseline levels of childcare use, employment, and paternal leave-taking in these families. This pattern aligns with evidence that reductions in supply-side childcare shortages disproportionately increase attendance among less-educated families, for whom search frictions and rationing constraints are most binding (Jessen et al., 2020, Hermes et al., 2025).

Panel B documents markedly weaker responses among families in which at least one parent was born abroad. While childcare expansion increases attendance and induces labor supply and leave-taking responses among non-migrant households, interaction terms indicate substantially smaller effects for migrant families across all outcomes. This pattern is consistent with persistent access frictions and informational barriers that weaken

the translation of aggregate childcare expansion into effective take-up and coordinated labor supply adjustments among migrant households.

Panel C examines heterogeneity by birth order. Independent of whether the child is firstborn, increases in childcare availability raise childcare attendance. Effects on fathers' full-time employment are also similar across birth order. In contrast, maternal employment responses and fathers' parental leave take-up are weaker for firstborn children. These patterns are consistent with greater uncertainty and learning costs at first birth, which may delay coordinated adjustments in parental leave-taking and maternal labor supply compared to families with prior childcare experience.

Taken together, these findings support our interpretation that childcare availability primarily operates through labor supply incentives and coordination margins that vary systematically across families, rather than through uniform changes in caregiving preferences.

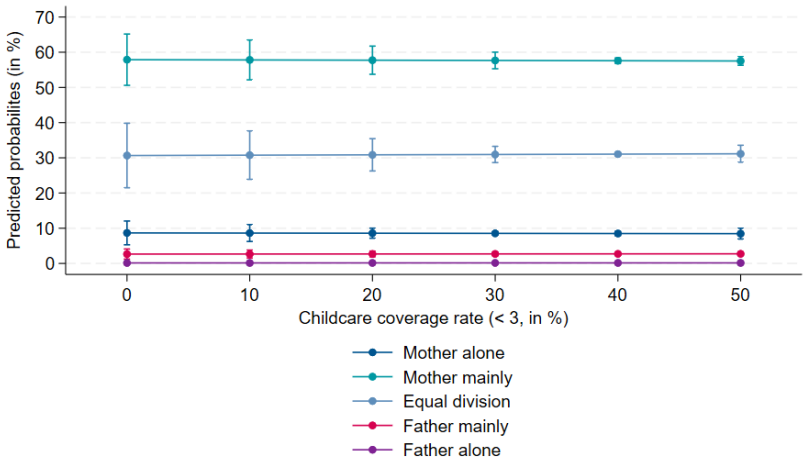
5.6. Effects on Weekday Division of Childcare

Finding positive effects on fathers' parental leave take-up raises the question of whether this is accompanied by detectable changes in fathers' weekday caregiving responsibilities later on. Figure 5 shows predicted probabilities based on a categorical measure of the division of unpaid work between parents on weekdays, ranging from 1 (solely the mother) to 5 (solely the father). The figure presents the predicted probabilities of each outcome category of division of childcare across different values of the county-level childcare rate based on separate estimations of eq. 1 using ordered logit models. In contrast to parental employment (see Appendix Figure A.12), we see little change in care division when provision of childcare increases. Note that we observe a slight increase in the probability of equal division and a corresponding slight decline in situations where the mother is the sole or main caregiver; though differences in coefficients never reach statistical significance.[24]

To complete the picture, we also assess the effects of the childcare expansion on other forms of childcare provided by grandparents or other paid or unpaid care arrangements,

[24]Results on binary and continuous measures of our outcome are summarized in Appendix Table A.8, where we find no significant effects. The coefficient on our binary measure amounts to about a 1.8 pp decrease in mothers' role as main caregiver when the childcare coverage rate increases by 10 pp. Based on the bounds of our results, we can exclude the possibility that the share of mothers being the main caregivers decreases by more than 5 pp when childcare coverage increases by 10 pp. We also find no systematic patterns on the binary outcome of whether the mother is the sole/main caregiver across children's ages until age 5 (see Figure A.13).

Fig. 5: Predicted probability of division of parental childcare when child is 12 to 35 months old conditional on childcare coverage rate for children below 3 years



Notes: Coefficient estimates with 95% CI of the childcare rate on division of childcare on a normal working day conditional on different childcare coverage rates (measured when child is 12 – 35 months old). Estimates stem from separate estimations of eq. 1 using ordered logit models. All models include county and birth year fixed effects, as well as individual-level and county-level controls (see Appendix Table A.2).
Source: Own illustration based on data from the KiBS (Lippert et al., 2024), the Federal Statistical Office (Statistisches Bundesamt, 2023), and INKAR (Bundesinstitut für Bau-, Stadt- und Raumforschung, 2023).

such as nannies, au pairs, surrogate grandparents, neighbors, friends, or siblings in Appendix Table A.7. We find negative but insignificant effects of the childcare expansion on grandparental care, and marginally significant reductions in other care arrangements for children between the ages of 12 to 35 months.

We conclude that increasing the availability of publicly subsidized childcare promotes a more equal allocation of parental leave and market work within couples, but it did not alter the role of main caregivers on a normal weekday.

5.7. Robustness Checks

To assess the robustness of our main findings, namely the dynamic and margin-specific labor supply responses of fathers to childcare availability, we conduct a series of sensitivity checks addressing identification, sample composition, and alternative sources of regional heterogeneity.

In Panel A of Table 5, we examine the sensitivity of our findings to alternative model specifications. We first address concerns regarding time-varying heterogeneity at the county level. One could be concerned that regions are on different time trends depending on their gender norms and progressivity. We extend the set of control variables and also include county net migration, debt, and tax capacity, all-day childcare coverage

Table 5: Robustness checks for main outcomes

	Dependent variables				
	Childcare attendance at 12 – 35 months (1)	Father took 2 months of leave (2)	Mother took > 12 months of leave (3)	Father works full-time (4)	Mother is employed (5)
Main specification	0.643***	0.340***	-0.304***	-0.176**	0.428***
	(0.142)	(0.107)	(0.103)	(0.086)	(0.119)
Observations	93,541	67,739	61,336	82,712	92,497
Panel A: Model specifications					
Extended set of control variables	0.659***	0.279**	-0.250*	-0.238**	0.381**
	(0.184)	(0.134)	(0.148)	(0.097)	(0.162)
Observations	88,626	61,836	55,803	78,060	87,614
Include pre-birth paternal leave share (county level)	0.668***	0.279**	-0.268**	-0.178**	0.434***
	(0.139)	(0.120)	(0.117)	(0.089)	(0.118)
Observations	92,066	65,874	59,271	81,283	91,022
Include state-cohort fixed effects	0.354**	0.244*	-0.271*	-0.143	0.059
	(0.147)	(0.128)	(0.153)	(0.104)	(0.155)
Observations	93,535	67,735	61,332	82,707	92,491
Include all-day childcare rate	0.633***	0.295**	-0.349***	-0.189**	0.338**
	(0.156)	(0.134)	(0.132)	(0.091)	(0.134)
Observations	93,535	65,415	58,732	82,707	92,491
Panel B: Sample restrictions					
Only West Germany	0.585***	0.456***	0.011	-0.143	0.359**
	(0.199)	(0.145)	(0.180)	(0.102)	(0.166)
Observations	61,213	41,642	36,281	54,158	60,557
Exclude movers	0.641***	0.345***	-0.301***	-0.177**	0.428***
	(0.142)	(0.108)	(0.103)	(0.086)	(0.119)
Observations	93,097	67,559	61,090	82,288	92,056
Only counties with excess demand	0.652***	0.359**	-0.213	-0.148	0.343**
	(0.154)	(0.140)	(0.137)	(0.092)	(0.133)
Observations	84,773	59,214	52,896	75,053	83,798

Notes: All models include county and birth year fixed effects, as well as individual-level and county-level controls (see Appendix Table A.2). In Columns 1 and Columns 4 to 5, children are 12 – 35 months old at time of outcome measurement. For Columns 2 and 3, outcomes are measured retrospectively. In Panel B, Row 3, the sample consists only of observations from counties with significant excess demand. This is determined by calculating the mean of the difference between the demand from parents for childcare slots and the child's actual attendance of childcare for those under 3 years old for each county and birth year combination and excluding the lowest quartile from the sample. Observations in the lowest quartile of county-level unmet demand for children below 3 in the year following birth are excluded. Robust standard errors clustered at county level are given in parentheses. *** p<0.01, ** p<0.05, * p<0.1.
Source: Own calculations based on data from the KiBS (Lippert et al., 2024), the Federal Statistical Office (Statistisches Bundesamt, 2023), and INKAR (Bundesinstitut für Bau-, Stadt- und Raumforschung, 2023).

rate, and account for varying trends depending on pre-expansion differences in childcare coverage. Specifically, we follow Blanden et al. (2016) and interact pre-expansion childcare coverage (measured in 2002) with cohort fixed effects. This allows counties with different

initial levels of childcare provision to follow flexible, cohort-specific trends over time. The specification therefore accounts for the possibility that regions with higher or lower initial coverage were already on differential trajectories in parental labor supply and gender norms prior to the expansion. As a result, identification is based on deviations from these baseline-specific trends rather than on level differences or smooth convergence patterns. This might appear particularly relevant in the German context, where we observe substantial convergence in childcare provision between East and West Germany (Appendix Figure A.5).

Second, we include the county-level share of fathers taking parental leave in the year preceding the child's birth. As this measure is predetermined with respect to the outcomes of interest, it captures persistent local norms regarding paternal involvement and gender roles without being mechanically affected by the current childcare environment. At the same time, it addresses concerns that regions with stronger trends in fathers' leave-taking may both demand more childcare and exhibit differential labor supply responses. Controlling for this pre-determined outcome therefore helps isolate variation in childcare expansion that is orthogonal to evolving local gender norms and behavioral trends. Across both specifications, the results remain stable: childcare availability increases attendance, induces fathers' parental leave-taking and reductions in full-time work, and raises maternal employment.

Third, we are concerned about potentially confounding effects due to other regional (primarily state-level) childcare and family policies that might coincide with the expansion. We incorporate state-by-year fixed effects, we absorb all state-level policy changes and shocks that are common within a federal state in a given year (e.g., fee reforms or state parental allowances). Identification therefore relies exclusively on within-state, within-cohort differences in childcare expansion across counties. This specification is very demanding. Reassuringly, the estimated effects on fathers' leave-taking and fathers' intensive-margin labor supply adjustments remain within the confidence intervals of the baseline specification. By contrast, estimates for maternal employment become less precise and are no longer statistically significant.

Fourth, we control for the share of all-day childcare slots in the county, as their expansion partly overlaps with our study period (Felfe and Zierow, 2018). This ensures that our estimates capture the effect of overall childcare availability rather than changes

in the intensity of care (full-day versus half-day). Reassuringly, including this control leaves our estimates virtually unchanged, suggesting that variation in overall coverage, not shifts toward full-day provision, drives the results.

Taken together, these specifications show that our results are not driven by differential pre-trends, evolving local norms, or coinciding policy changes, but instead reflect variation in childcare expansion that is plausibly orthogonal to underlying county-level trajectories.

In Panel B of Table 5, we assess how sensitive our results are to various sample adjustments that might bias our main findings.

First, we address concerns about time-varying heterogeneity between East and West Germany that we might not fully account for by including the rich set of county controls or by controlling for pre-expansion coverage rates. When we focus only on West German counties, coefficients are very similar in magnitude with the exception of mothers' leave-taking of more than 12 months (Column 3). Differences for mothers' leave-taking in West Germany likely reflect stronger norms around maternal caregiving, rather than a failure of identification.

Second, we address potential selective mobility between counties. We exclude observations in which the county code changes between survey waves for children repeatedly observed. The results are very similar to the main results.

Third, we run regressions including only counties with excess demand[25] to make sure that our identifying variation reflects supply-side shortages rather than other underlying heterogeneity across counties and over time. Results are very similar.

A remaining potential concern is that expansions in subsidized childcare may affect fertility decisions and thereby alter family composition. While childcare availability may influence completed fertility at longer horizons (Bauernschuster et al., 2016), we find no evidence that it affects the probability of having an additional child within the age window we study. Appendix Table A.9 shows that childcare coverage does not predict the presence of a younger sibling at any child age considered, suggesting that our estimates capture labor supply responses to childcare availability for the focal child rather than changes in family size.

[25] In this specification we capture significant excess demand by excluding counties in the lowest quartile of county-level childcare gap. The gap is calculated as the county-level average of demand minus supply of slots for children below three years, similar to Jessen et al. (2020).

Finally, we test the sensitivity of our results to variations in the considered birth cohorts. Our baseline sample includes children born between 2009 and 2019. Results are robust to alternative birth cohort definitions and age ranges, and the estimated effects of childcare availability on attendance are stable across all specifications, indicating that they are not driven by cohort composition or differential exposure across survey waves (Appendix Table A.10).

Across all robustness checks, the timing, sign, and margins of fathers' labor supply responses remain stable, reinforcing our interpretation that childcare expansions induce labor supply adjustments of fathers.

6. Conclusions

This paper examines how the expansion of publicly subsidized childcare affects the allocation of labor supply and caregiving within households, with a particular focus on fathers' labor supply responses over early childhood. We exploit a policy environment in Germany designed to promote maternal employment and increase fathers' involvement, orchestrating parental leave, paternal quotas, and a legal entitlement to subsidized childcare. We identify causal effects of childcare availability using exogenous regional variation in the expansion of childcare slots for children under three. We find that expanding universal childcare significantly accelerates children's entry into childcare and mothers' re-entry into the labor market. While mothers take shorter parental leave, the expansions increase fathers' likelihood of taking paternity leave. After paid parental leave expires and children enter childcare, we document modest declines in fathers' full-time employment alongside pronounced labor supply responses among mothers at both the intensive and extensive margins. Back-of-the-envelope calculations suggest that paternal labor supply responses offset roughly 12 percent of the maternal increase in working hours induced by childcare expansion. Fathers' subsequent caregiving roles remain largely unaffected.

The observed increases in fathers' leave-taking and modest shifts from paternal full- to part-time employment align with evidence from paternity leave reforms and fathers' quotas in Norway, Sweden, Finland, and Spain (Kotsadam and Finseraas, 2011, Patnaik, 2019, Eerola et al., 2022, González and Zoabi, 2026). As in these studies, we find that fathers respond to policy incentives by taking leave, which can temporarily increase childcare involvement. However, these short-term adjustments in Germany do not translate

into substantial or persistent increases in fathers' weekday caregiving. This is consistent with findings from Eerola et al. (2022), who emphasize that leave-taking alone often does not equalize caregiving responsibilities without broader cultural or institutional support, and González and Zoabi (2026), who find that sustained paternal engagement depends on leave intensity and structures of leave policies. While Kotsadam and Finseraas (2011) and Patnaik (2019) document long-term behavioral and normative shifts following quota-based reforms, our results suggest that modest changes in fathers' labor supply and leave-taking in Germany are not sufficient to produce persistent redistributions of childcare within households.[26]

Prior research suggests that increases in fathers' involvement in domestic work often relate to housework or caregiving on weekends (Tamm, 2019). We focus explicitly on fathers' involvement in *childcare* on a *weekday*, a margin that is highly relevant for understanding persistent gender gaps in labor markets. Overall, our findings are consistent with a "stalled gender revolution," reflected in stagnating improvements in paternal childcare engagement and persistent gender gaps in the labor market despite substantial policy efforts to increase fathers' involvement in child-rearing (Raley et al., 2012, Kleven et al., 2024, Zoch and Heyne, 2023). Childcare provision thus appears to primarily substitute for maternal care rather than enabling a substantial redistribution of childcare responsibilities between parents.

The limited changes in fathers' caregiving may partly reflect the weak association between maternal employment and paternal childcare. While childcare availability enables mothers to increase market work, working mothers may be reluctant to reduce time spent with their children to the same extent as time spent on housework. Feelings of guilt from outsourcing childcare may lead some mothers to maintain quality time with their children despite employment, as suggested by our supplementary time-use analysis. As a result, increases in maternal employment can coexist with continued primary responsibility for childcare, resulting in what is often described as a "double shift" for mothers.

Our findings do *not* imply that universal childcare is ineffective in promoting gender equality more broadly. Prior work shows that childcare expansions can shift gender norms

[26]For Germany, Bünning and Pollmann-Schult (2015) show that fathers increased their involvement in childcare even after short leaves. However, fathers' choice of parental leave length may be correlated with their preferences for childcare or housework, which the fixed-effects approach may not fully account for without an exogenous source of variation in the length of fathers' parental leave.

and attitudes, particularly among mothers (Zoch and Schober, 2018). Behavioral adjustments to such normative changes likely occur only gradually and may not be captured in short- to medium-run estimates such as ours.

In sum, our analyses shed new light on the interplay between different family policies, showing that substantial family policy efforts can alter the division of paid labor within households without generating corresponding changes in the division of caregiving. Evaluations of childcare policies that focus exclusively on maternal employment risk overstating their aggregate labor supply effects and overlooking offsetting responses by fathers. Accounting for dynamic labor supply adjustments of both parents is therefore crucial to understanding the full labor market and distributional consequences of childcare policies.

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Appendix

A.1. Tables

Table A.1: Descriptive statistics: Outcome variables

	Mean (1)	SD (2)	Min (3)	Max (4)	Obs (5)
Panel A: Sample of parents with child 12 – 35 months					
County-level childcare coverage (< 3)	31.24	0.13	6.90	64.80	94,401
Individual childcare attendance					
Attendance	63.84	48.05	0	1	94,194
1 – 25 hours	13.82	34.51	0	1	93,856
26 – 35 hours	20.45	40.33	0	1	93,856
> 35 hours	29.66	45.67	0	1	93,856
Maternal Employment					
Employment	64.28	47.92	0	1	93,130
Full-time	21.31	40.95	0	1	93,130
Part-time long	32.72	46.92	0	1	93,130
Part-time short	10.25	30.33	0	1	93,130
Paternal employment					
Employment	95.52	21.47	0	1	83,152
Full-time	86.72	33.94	0	1	83,152
Part-time long	7.25	25.93	0	1	83,152
Part-time short	1.19	10.83	0	1	83,152
Division of childcare					
Childcare division (1-5)	2.28	0.66	1	5	57,392
Mother cares solely	8.57	27.99	0	1	57,392
Mother cares mainly	57.47	49.44	0	1	57,392
Equal division	31.07	46.28	0	1	57,392
Father cares mainly	2.74	16.33	0	1	57,392
Father cares solely	0.15	3.85	0	1	57,392
Proximity to father's work relevant for Kita	34.07	47.40	0	1	24,955
Panel B: Retrospective outcomes					
Paternal leave-taking					
Father took leave	52.76	49.92	0	1	67,489
Father: Exactly 2 months	36.47	48.14	0	1	67,489
Father: More than 2 months	13.94	34.64	0	1	67,489
Mother: Exactly 12 months	45.17	49.77	0	1	61,182
Mother: More than 12 months	35.34	47.80	0	1	61,182

Notes: Means are presented as percentage shares when no unit is specified.
Source: Own calculations based on data from the KiBS (Lippert et al., 2024), and the Federal Statistical Office (Statistisches Bundesamt, 2023).

Table A.2: Descriptive statistics: Control variables (sample with parents of child 12 – 35 months)

	Mean (1)	SD (2)	Min (3)	Max (4)	Obs (5)
Panel A: Individual level controls					
Maternal education: School-leaving certificate					
Basic degree	3.78	19.08	0	1	94,401
Intermediate degree	21.32	40.96	0	1	94,401
University entrance quali. (*Abitur*)	69.26	46.14	0	1	94,401
No/other degree	1.01	10.00	0	1	94,401
Missing	4.63	21.01	0	1	94,401
Paternal education: School-leaving certificate					
Basic degree	2.72	16.27	0	1	94,401
Intermediate degree	7.53	26.40	0	1	94,401
University entrance quali. (*Abitur*)	27.58	44.69	0	1	94,401
No/other degree	0.41	6.36	0	1	94,401
Missing	61.75	48.60	0	1	94,401
At least one parent born abroad	17.44	37.95	0	1	94,401
Migration background missing	2.43	15.38	0	1	94,401
Child female	48.65	49.98	0	1	94,401
Maternal age at birth (in years)	32.18	4.78	14	60	94,401
Paternal age at birth (in years)	35.22	5.08	15	79	94,401
Missing paternal age	27.69	44.75	0	1	94,401
Child's age at interview (in months)	22.91	6.84	12	35	94,401
Panel B: County-level controls					
Population density (inhabitants per km^2)	533.16	695.48	35.34	4868.01	94,401
GDP p.c. (in €1,000 per inhabitant)	35.33	15.77	12.74	195.64	94,401
Share of men with *Abitur*	28.53	09.05	0	68.07	94,401
Share of women with *Abitur*	36.04	10.26	0	72.17	94,401
Share of immigrants	09.00	05.30	0.66	38.97	94,401
Vote share conservative party (CDU)	42.72	08.58	18.25	63.47	94,401
Share of population below 3 years old	02.61	00.31	1.75	3.60	94,401
Share of population 3 – 5 years old	02.61	00.26	1.76	3.60	94,401
Share of population 6 – 17 years old	10.99	01.24	6.81	16.01	94,401
Share of population 18 – 24 years old	7.60	1.55	3.63	14.18	94,401
Share of population 25 – 29 years old	5.88	1.40	2.17	11.50	94,401
Share of population 30 – 49 years old	25.69	1.98	20.37	33.99	94,401
Share of population 50 – 64 years old	22.75	2.28	16.35	29.16	94,401

Notes: Means are presented as percentage shares when no unit is specified.
Source: Own calculations based on data from the KiBS (Lippert et al., 2024), and INKAR (Bundesinstitut für Bau-, Stadt- und Raumforschung, 2023).

Table A.3: Correlations of main outcomes of fathers' involvement with alternative measures of fathers' involvement

	Dependent variables					
	Proximity to dad's workplace matters for childcare choice (dummy) (1)	Satisfaction with childcare division (scale 1 – 6) (2)	Unsatisfied with childcare division (dummy) (3)	Optimal childcare division (scale 1 – 5) (4)	At least equal division is optimal (dummy) (5)	Higher involv. would help reconciliation (dummy) (6)
Division of childcare (scale 1 - 5)	0.113***	0.684***	-0.157***	0.358***	0.288***	-0.201***
	(0.003)	(0.014)	(0.004)	(0.005)	(0.004)	(0.006)
Observations	55,026	22,996	22,996	22,869	22,869	12,381
Spearman's ρ	0.164***	0.349***	-0.267***	0.439***	0.416***	-0.299***
Mother is main caregiver	-0.149***	-0.975***	0.209***	-0.462***	-0.409***	0.298***
	(0.004)	(0.015)	(0.004)	(0.006)	(0.005)	(0.008)
Spearman's ρ	-0.157***	-0.345***	0.232***	-0.404***	-0.392***	0.291***
Observations	55,026	22,996	22,996	22,869	22,869	12,381

Notes: The table shows how our main outcomes measuring fathers' involvement—namely, the continuous scale of childcare division on a weekday from 1 (mother cares alone) to 5 (father cares alone) and a dummy variable that is 1 if the mother is the main caregiver and 0 otherwise—are correlated with other variables related to childcare division. For each variable pair, OLS regression coefficients, where all models include fixed effects for birth year and individual-level controls (see Appendix Table A.2, Panel A), are provided, with robust standard errors given in parentheses. Children are 0 – 13 years old at time of outcome measurement. Additionally, Spearman's ρ is reported. Column 1 shows the correlation to a dummy variable that is 1 when the proximity of the father's workplace was important for the parents' choice of a childcare center and 0 if it was not stated as important. Columns 2 and 3 report the correlation with the mother's satisfaction regarding the division of childcare. In Column 2, satisfaction is measured on a scale from 1 (not at all satisfied) to 6 (completely satisfied), while in Column 3, it is represented as a dummy variable that is 1 if the mother is unsatisfied with the division (indicated by a value between 1 and 3) and 0 if a value higher than 3 is reported. In Columns 3 and 4, outcomes are correlated with a variable providing information on the desired or perceived optimal division of childcare. In Column 4, this is indicated by a scale from 1 (mother cares alone) to 5 (father cares alone), while in Column 5, it is represented as a dummy variable, with 1 indicating that at least an equal division (values 3-5) is desired and 0 if otherwise (values 1 and 2). Finally, Column 6 presents correlations with a dummy variable indicating whether higher involvement of the father would facilitate the mother's reconciliation of work and family (1 for yes, 0 for no). The samples are not restricted to a certain age group. *** p<0.01, ** p<0.05, * p<0.1.
Source: Own calculations based on data from the KiBS (Lippert et al., 2024).

Table A.4: Effects of childcare expansion on childcare attendance

	Dependent variables: Childcare attendance by age			
	Main sample	First three years separately		
	12 – 35 months	0 – 11 months	12 – 23 months	24 – 35 months
	(1)	(2)	(3)	(4)
Childcare rate under 3 years	0.643***	0.071	0.839***	0.498***
	(0.142)	(0.105)	(0.204)	(0.142)
Observations	93,541	28,653	51,415	42,126
Mean of dep. var	0.636	0.083	0.525	0.773
SD of dep. var	0.481	0.276	0.499	0.419

Notes: All models include county and birth year fixed effects, as well as individual-level and county-level controls (see Appendix Table A.2). Robust standard errors clustered at county level are given in parentheses. *** p<0.01, ** p<0.05, * p<0.1.
Source: Own calculations based on data from the KiBS (Lippert et al., 2024), the Federal Statistical Office (Statistisches Bundesamt, 2023), and INKAR (Bundesinstitut für Bau-, Stadt- und Raumforschung, 2023).

Table A.5: Effects of childcare expansion on intensive margin of childcare attendance (age 12 – 35 months)

	Dependent variables: Childcare attendance (age 12 – 35 months)			
	Attendance (> 0 hours)	Full-time (> 35 hours)	Part-time (ext.) (26 – 35 hours)	Part-time (1 – 25 hours)
	(1)	(2)	(3)	(4)
Childcare rate under 3 years	0.643***	0.427***	0.131	0.105
	(0.142)	(0.160)	(0.171)	(0.112)
Observations	93,541	93,205	93,205	93,205
Mean of dep. var	0.636	0.295	0.204	0.139
SD of dep. var	0.481	0.456	0.403	0.346

Notes: All models include county and birth year fixed effects, as well as individual-level and county-level controls (see Appendix Table A.2). All dependent variables are measured when children are 12 – 35 months old. Robust standard errors clustered at county level are given in parentheses. *** p<0.01, ** p<0.05, * p<0.1.
Source: Own calculations based on data from the KiBS (Lippert et al., 2024), the Federal Statistical Office (Statistisches Bundesamt, 2023), and INKAR (Bundesinstitut für Bau-, Stadt- und Raumforschung, 2023).

Table A.6: Long-run effects of childcare expansion on fathers' and mothers' employment

	Dependent variables: Parental Employment			
	Extensive (> 0 hours) (1)	Full-time (> 34 hours) (2)	Part-time (long) (20 – 34 hours) (3)	Part-time (short) (1 – 19 hours) (4)
Panel A: Fathers' employment when child is 3 to 5 years old				
Childcare coverage below 3 years	-0.054 (0.067)	-0.072 (0.111)	0.035 (0.088)	-0.017 (0.030)
Observations	59,499	59,499	59,499	59,499
Mean of dep. var	0.962	0.879	0.073	0.010
SD of dep. var	0.192	0.326	0.260	0.098
Panel B: Mothers' employment when child is 3 to 5 years old				
Childcare coverage below 3 years	-0.130 (0.136)	0.073 (0.149)	-0.112 (0.176)	-0.092 (0.116)
Observations	62,751	62,751	62,751	62,751
Mean of dep. var	0.771	0.255	0.404	0.112
SD of dep. var	0.420	0.436	0.491	0.316
Panel C: Fathers' employment when child is 6 to 9 years old				
Childcare coverage below 3 years	-0.032 (0.065)	-0.039 (0.098)	0.007 (0.086)	0.000 (0.028)
Observations	62,300	62,300	62,300	62,300
Mean of dep. var	0.966	0.891	0.066	0.010
SD of dep. var	0.181	0.312	0.248	0.097
Panel D: Mothers' employment when child is 6 to 9 years old				
Childcare coverage below 3 years	0.038 (0.090)	0.227* (0.125)	0.041 (0.142)	-0.230** (0.101)
Observations	67,228	67,228	67,228	67,228
Mean of dep. var	0.861	0.278	0.445	0.138
SD of dep. var	0.346	0.448	0.497	0.345

Notes: All models include county and birth year fixed effects, as well as individual-level and county-level controls (see Appendix Table A.2). Robust standard errors clustered at the county level are given in parentheses.
*** p<0.01, ** p<0.05, * p<0.1.
Source: Own calculations based on data from the KiBS (Lippert et al., 2024), the Federal Statistical Office (Statistisches Bundesamt, 2023), and INKAR (Bundesinstitut für Bau-, Stadt- und Raumforschung, 2023).

Table A.7: Effects of childcare expansion on other care arrangements (age 12 – 35 months)

	Dependent variables: Other care arrangements		
	Grandparents normally care	Grandparental care hours	Other care arrangements
	(1)	(2)	(3)
Childcare coverage below 3 years	-0.031	-1.495	-0.161*
	(0.141)	(2.378)	(0.091)
Observations	91,501	51,592	93,750
Mean of dep. var	0.464	3.324	0.145
SD of dep. var	0.499	6.981	0.352

Notes: All models include county and birth year fixed effects, as well as individual-level and county-level controls (see Appendix Table A.2). All dependent variables are measured when children are 12 – 35 months old. Robust standard errors clustered at county level are given in parentheses. *** p<0.01, ** p<0.05, * p<0.1.
Source: Own calculations based on data from the KiBS (Lippert et al., 2024), the Federal Statistical Office (Statistisches Bundesamt, 2023), and INKAR (Bundesinstitut für Bau-, Stadt- und Raumforschung, 2023).

Table A.8: Effects of an increase in childcare coverage on fathers' involvement (children aged 12 – 35 months)

	Dependent variables		
	Division of childcare on a weekday (continuous, only mother [1] to only father [5])	Mother is main caregiver	Proximity to father's workplace is important for Kita choice
	(1)	(2)	(3)
Childcare coverage below 3 years	0.137	-0.176	0.043
	(0.230)	(0.164)	(0.284)
Observations	57,612	57,612	25,052
Mean of dep. var	2.284	0.660	0.341
SD of dep. var	0.662	0.474	0.474

Notes: All models include county and birth year fixed effects, as well as individual-level and county-level controls (see Appendix Table A.2). All dependent variables are measured when children are 12 – 35 months old. Robust standard errors clustered at the county level are given in parentheses. *** p<0.01, ** p<0.05, * p<0.1.
Source: Own calculations based on data from the KiBS (Lippert et al., 2024), the Federal Statistical Office (Statistisches Bundesamt, 2023), and INKAR (Bundesinstitut für Bau-, Stadt- und Raumforschung, 2023).

Table A.9: Sensitivity checks: Effects of childcare expansion on subsequent fertility

	Dependent variable: Anchor child aged ... has a younger sibling			
	0 – 35 months (full sample)	0 – 11 months	12 – 23 months	24 – 35 months
	(1)	(2)	(3)	(4)
Childcare coverage below 3 years	0.003	0.059	0.048	-0.036
	(0.088)	(0.104)	(0.089)	(0.168)
Observations	10,0290	23,391	42,155	34,744

Notes: All models include county and birth year fixed effects, as well as individual-level and county-level controls (see Appendix Table A.2). Robust standard errors clustered at county level are given in parentheses. *** p<0.01, ** p<0.05, * p<0.1.
Source: Own calculations based on data from the KiBS (Lippert et al., 2024), the Federal Statistical Office (Statistisches Bundesamt, 2023), and INKAR (Bundesinstitut für Bau-, Stadt- und Raumforschung, 2023).

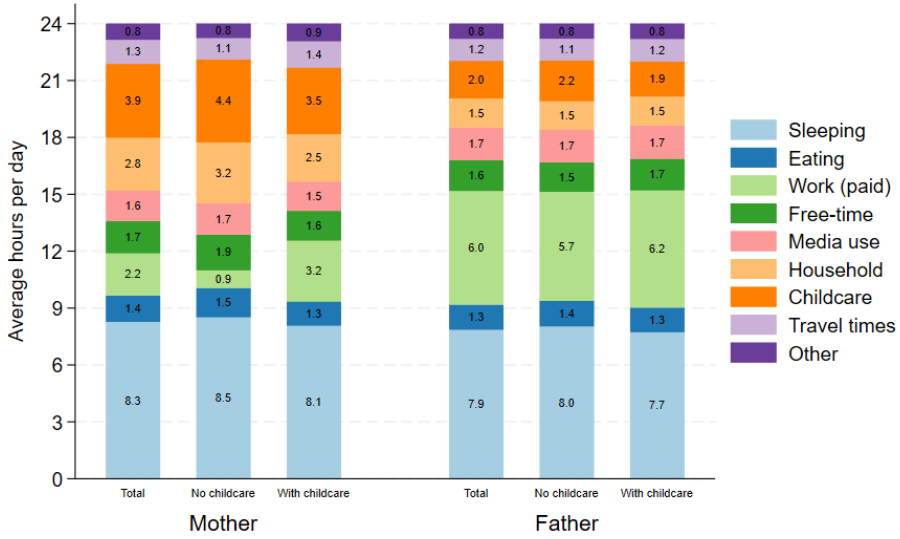
Table A.10: Sensitivity Checks: Effects on childcare attendance (age 12 – 35 months) for varying birth cohorts

	Dependent variable: Childcare attendance (age 12 – 35 months)			
	Samples of different birth cohorts			
	2009 – 2021 (main sample)	2011 – 2021	2010 – 2021	2009 – 2020
	(1)	(2)	(3)	(4)
Childcare coverage below 3 years	0.643***	0.619***	0.629***	0.657***
	(0.142)	(0.164)	(0.143)	(0.140)
Observations	93,541	82,391	90,960	92,204

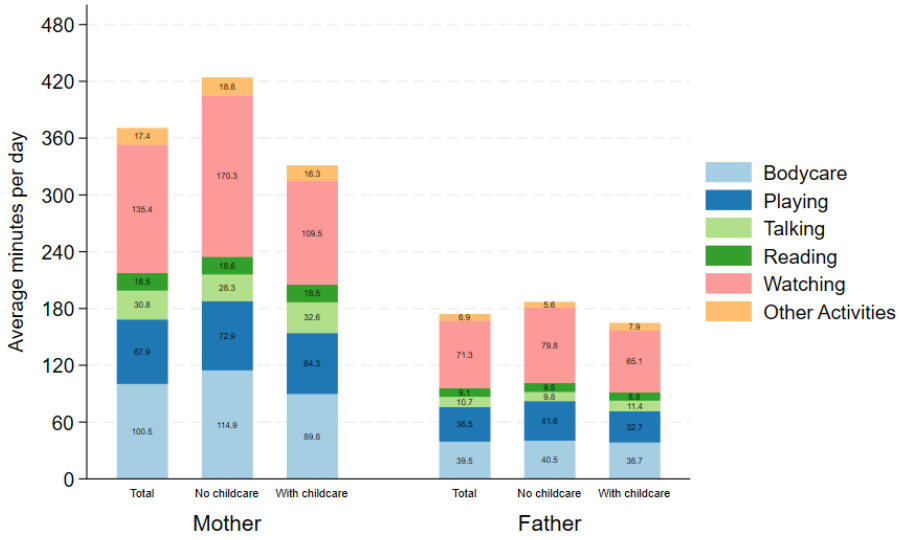
Notes: All models include county and birth year fixed effects, as well as individual-level and county-level controls (see Appendix Table A.2). For all samples, the dependent variable is measured when children are 12 – 35 months old. Robust standard errors clustered at county level are given in parentheses. *** p<0.01, ** p<0.05, * p<0.1.
Source: Own calculations based on data from the KiBS (Lippert et al., 2024), the Federal Statistical Office (Statistisches Bundesamt, 2023), and INKAR (Bundesinstitut für Bau-, Stadt- und Raumforschung, 2023).

A.2. Figures

Fig. A.1: Parents total time-use and time spent with childcare



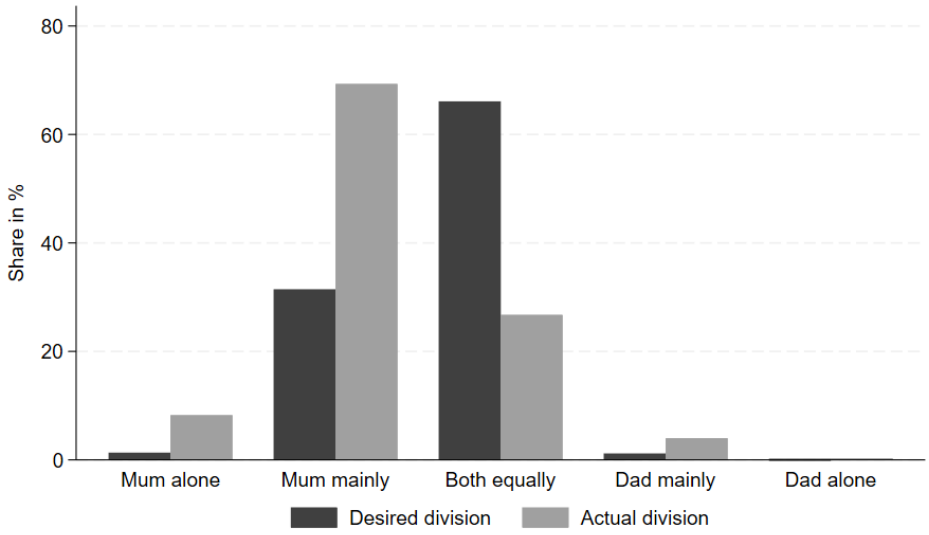
A: Parental time-use by childcare attendance



B: Parental childcare activities by childcare attendance

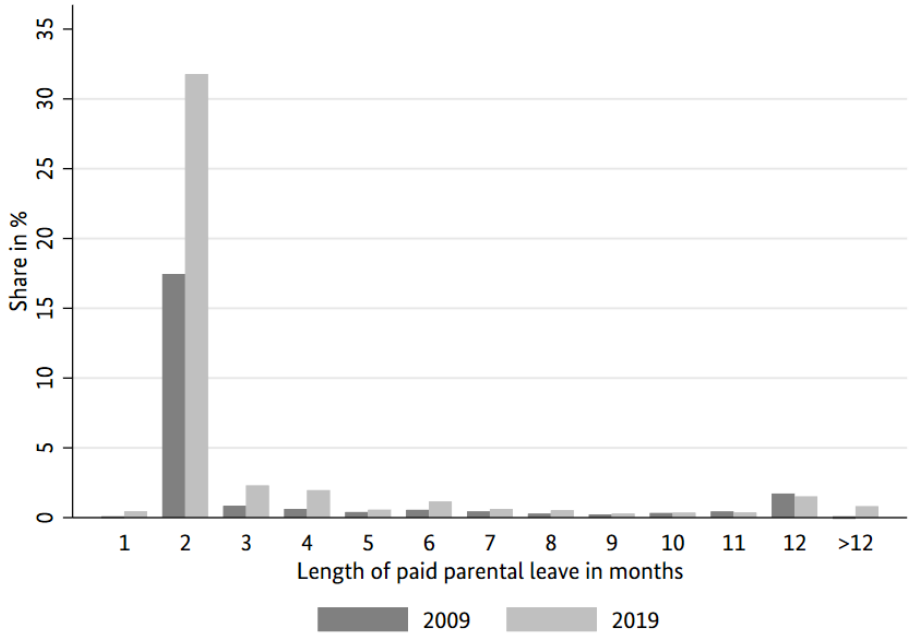
Notes: Based on 2022 time-use survey data, the graphs show how mothers and fathers allocate weekday time, overall and by childcare attendance of the youngest child (aged 1–2). Subfigure A reports only main activities, which sum to 24 hours. Subfigure B includes both main and secondary childcare activities, resulting in overall childcare time that exceeds that in Subfigure A. Childcare in this figure includes only the activities explicitly stated by parents as their main or secondary activity; it does not account for other activities during which the child is present. Therefore, the time spent together with the child each day would be higher. Means are based on 2,156 observations.
Source: Own illustration based on data from the survey of the time use of the population 2022 of the statistical offices of the Federation and the Länder (Federal Statistical Office and Statistical Offices of the Federal States of Germany, 2022).

Fig. A.2: Actual and desired division of childcare

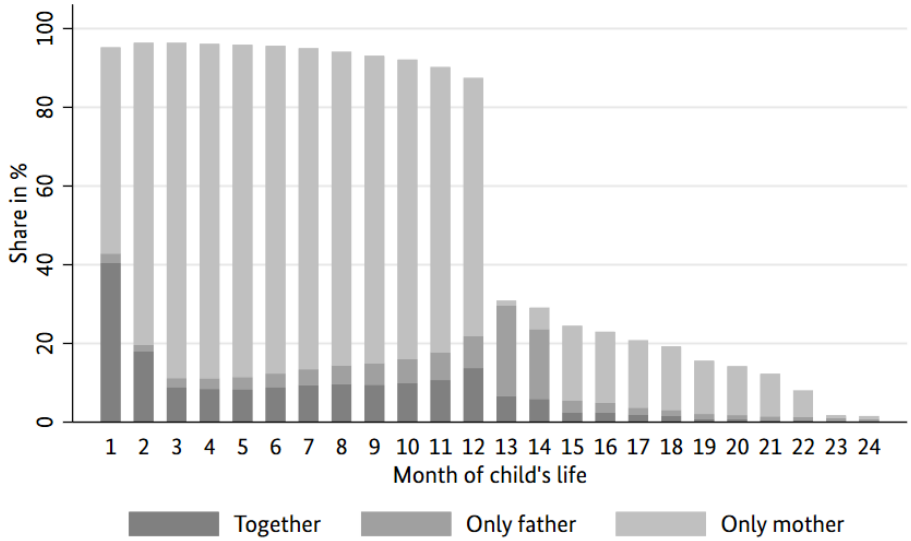


Notes: The figure illustrates the division of childcare that mothers express as their preference, alongside the actual distribution of childcare responsibilities between parents, represented as shares of each category. This information is derived from the 2022 survey, children are between 0 and 10 years old at time of outcome measurement (22,946 observations).
Source: Own calculation based on KiBS data (Lippert et al., 2024).

Fig. A.3: Paternity leave in Germany



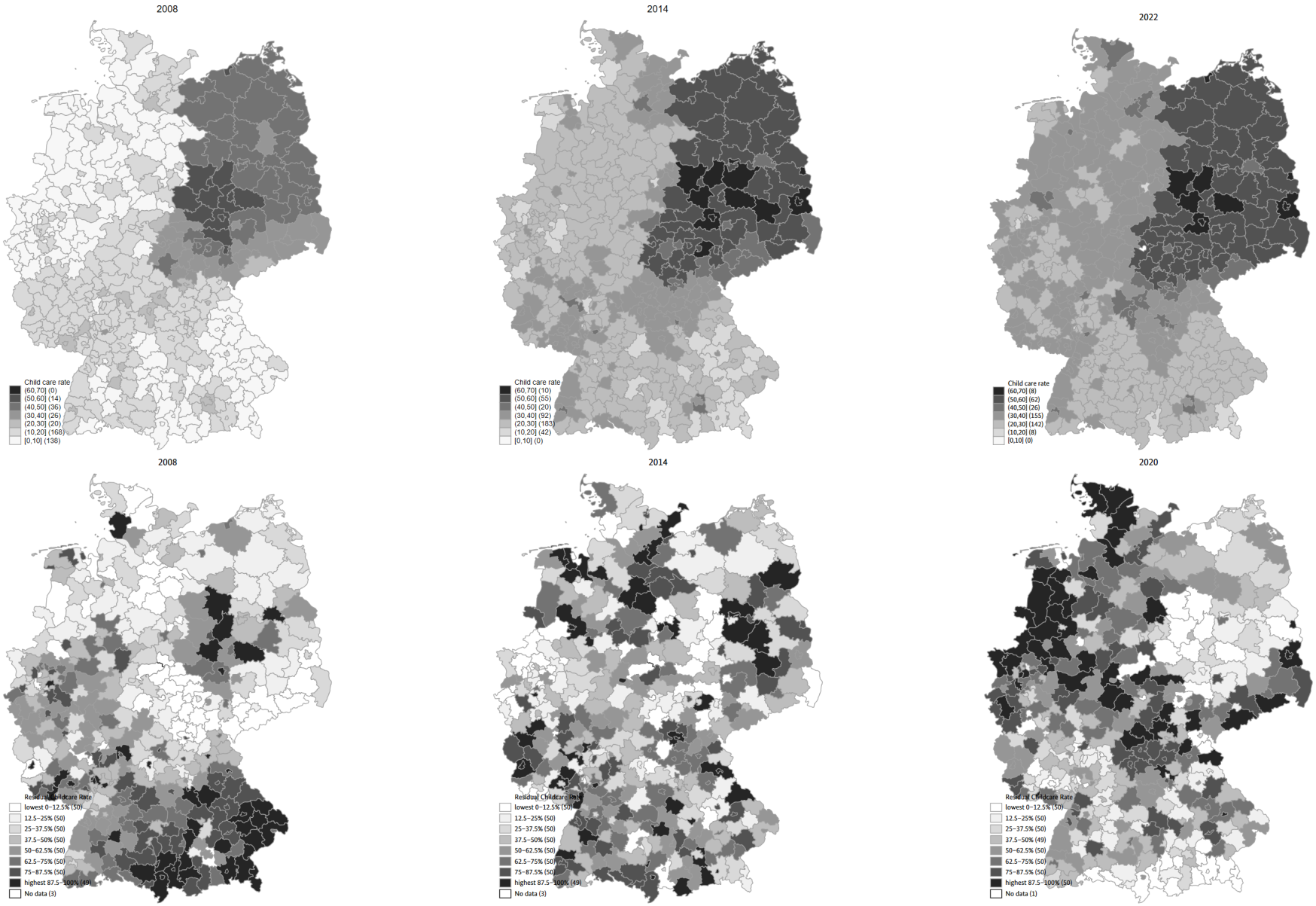
A: Duration of paternity leave benefits for children born 2009 and 2019



B: Allocation of parental leave by child age in 2019

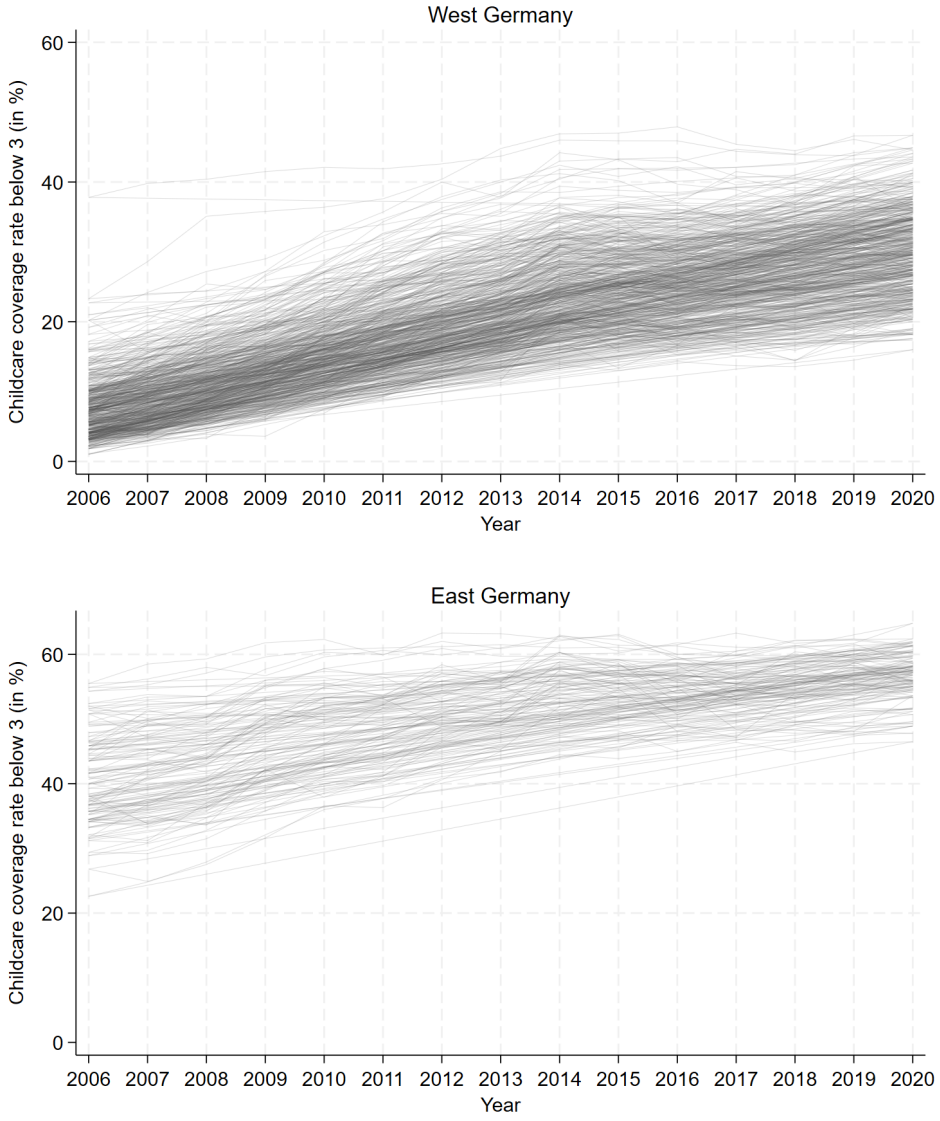
Source: Customized statistics on parental leave benefit receipts from the Federal Statistical Office retrieved from Brehm et al. (2022).

Fig. A.4: (Residualized) Childcare coverage rates for children under the age of three over time by county



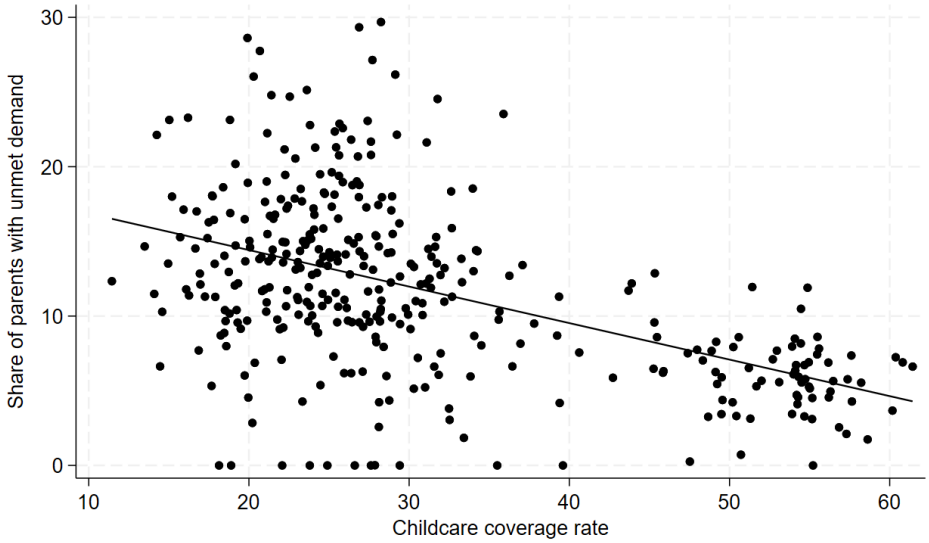
Notes: Row one shows raw childcare coverage rates for selected years. Row two shows residualizes childcare coverage with respect to county and year fixed effects as well as the full set of time-varying county characteristics included in the main specification: population density, GDP per capita, the shares of women and men with Abitur, migration share, conservative vote share, and population shares by age group.
Source: Own illustration using data from the Federal Statistical Office (Statistisches Bundesamt, 2023).

Fig. A.5: Childcare coverage rates for children under the age of three over time by county



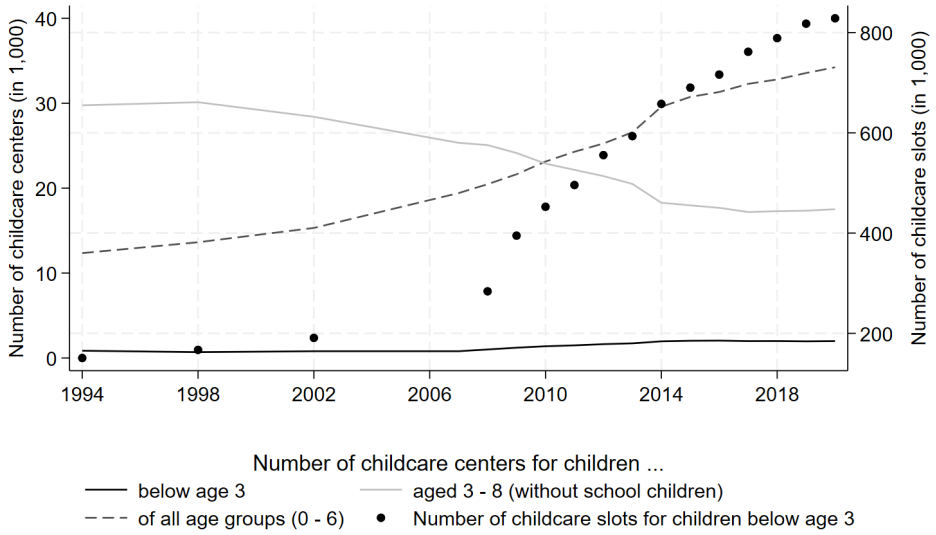
Source: Own illustration using data from *"Kinder und tätige Personen in Tageseinrichtungen und in öffentlich geförderter Kindertagespflege"* for the years 2006 to 2020 of the Federal Statistical Office (Statistisches Bundesamt, 2023).

Fig. A.6: Excess demand and childcare coverage rate on county level



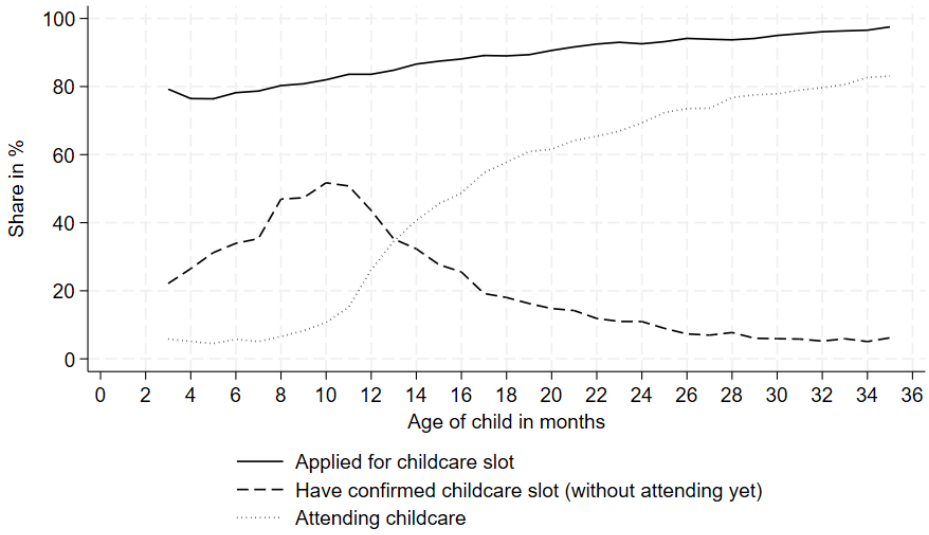
Notes: The figure shows the share of parents with unmet demand (parents indicate demand for childcare but child is not attending childcare) and the share of children attending childcare on a county-level collapsed across the years 2012 to 2022. *Source*: Own calculation based on KiBS data (Lippert et al., 2024).

Fig. A.7: Number of childcare centers and slots over time



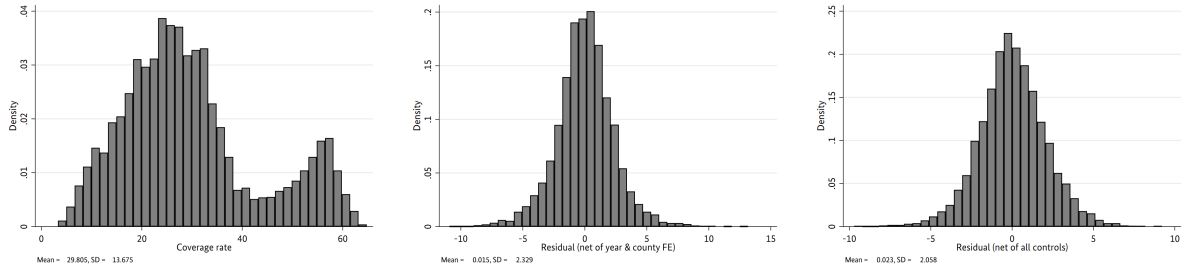
Notes: The figure shows the number of childcare centers for different age groups and the number of slots for children below age three. Childcare centers for all age groups include both groups for children under three and groups for older children. *Source:* Own illustration based on data from the Federal Statistical Office (1994 – 2020) (Statistisches Bundesamt, 2023).

Fig. A.8: Timing of application for children and attendance in Germany



Notes: The figure shows the share of parents who have submitted at least one application for a childcare slot, the share who have secured a confirmed slot (though the child has not yet started attending), and the share whose child is already attending childcare, by the child's age in months.
Source: Own calculation based on KiBS data.

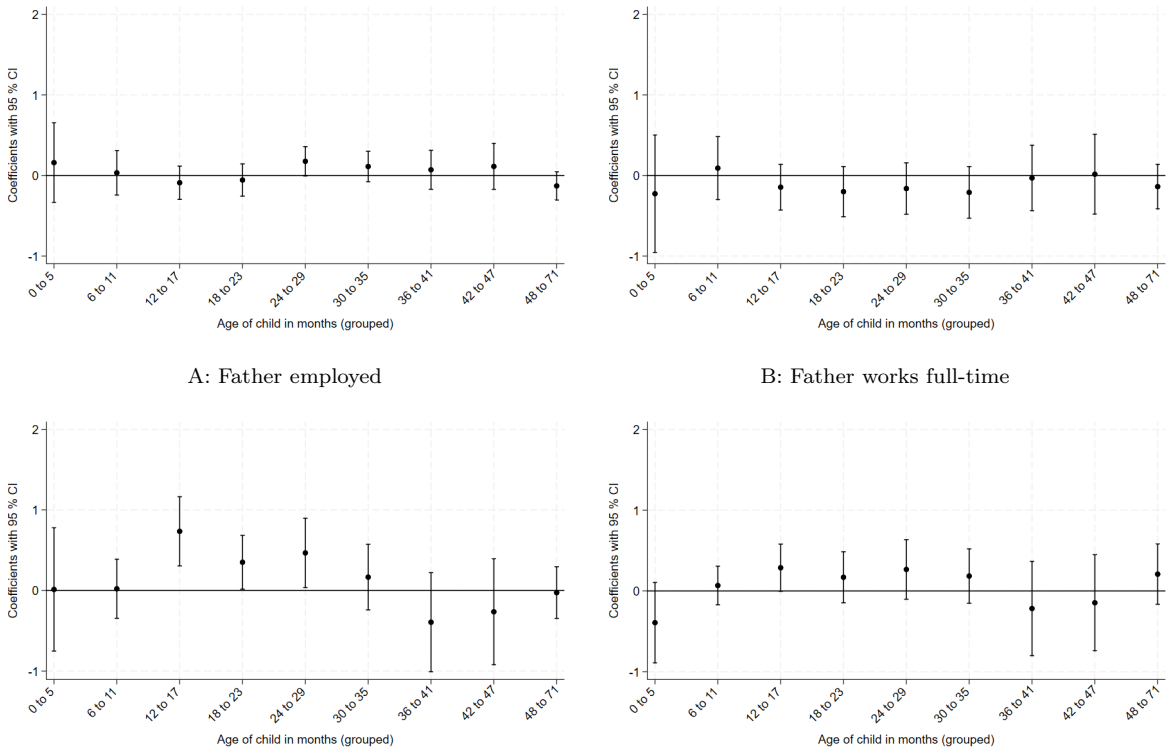
Fig. A.9: Distribution of county-level childcare coverage under alternative residualization schemes



(a) Raw variation **(b)** With county and year fixed effects **(c)** With main set of controls

Notes: Panel (a) shows the raw distribution of county-level childcare coverage rates for children under age three. Panel (b) residualizes childcare coverage with respect to county and year fixed effects. Panel (c) additionally residualizes childcare coverage with respect to the full set of time-varying county characteristics included in the main specification: population density, GDP per capita, the shares of women and men with *Abitur*, migration share, conservative vote share, and population shares by age group.
Source: Own illustration based on data from the Federal Statistical Office (Statistisches Bundesamt, 2023), and INKAR (Bundesinstitut für Bau-, Stadt- und Raumforschung, 2023).

Fig. A.10: Effects of childcare expansion for children under age three on parental employment



A: Father employed

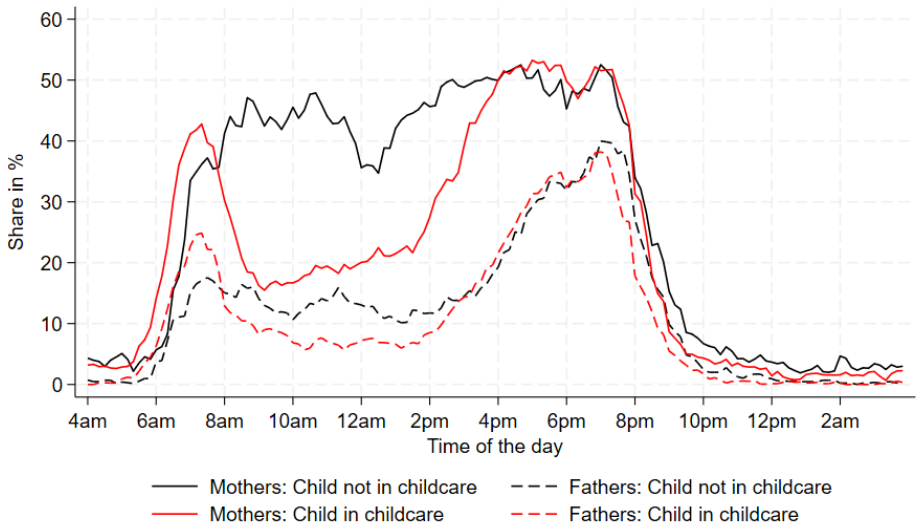
B: Father works full-time

C: Mother employed

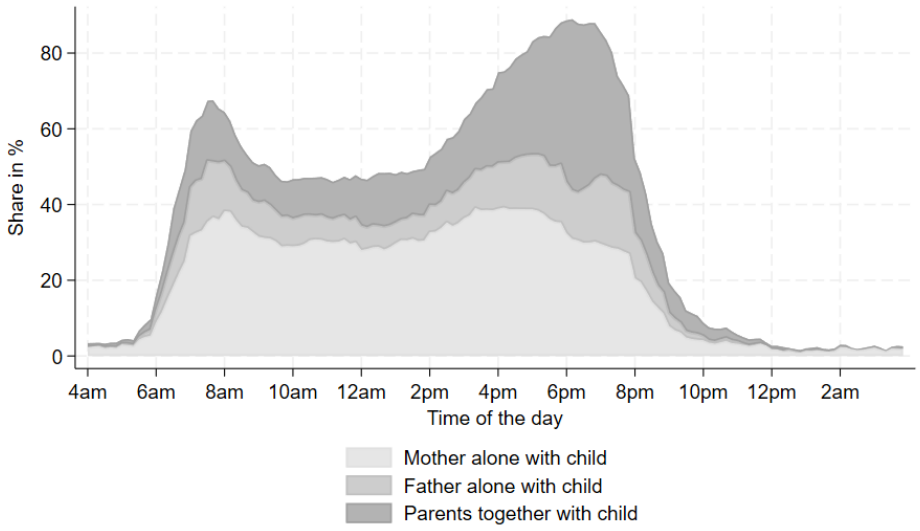
D: Mother works full-time

Notes: Coefficient estimates with 95% CI of the childcare rate on parental employment (extensive and intensive margin). Estimates stem from separate estimations of eq. 1 by age. All models include county and birth year fixed effects, as well as individual-level and county-level controls (see Appendix Table A.2).
Source: Own illustration based on data from the KiBS (Lippert et al., 2024), the Federal Statistical Office (Statistisches Bundesamt, 2023), and INKAR (Bundesinstitut für Bau-, Stadt- und Raumforschung, 2023).

Fig. A.11: Daily time use patterns by childcare attendance



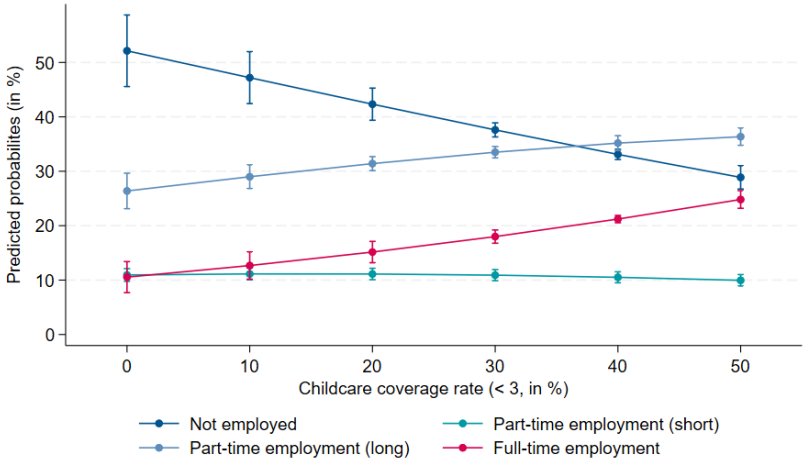
A: Parental childcare by childcare attendance



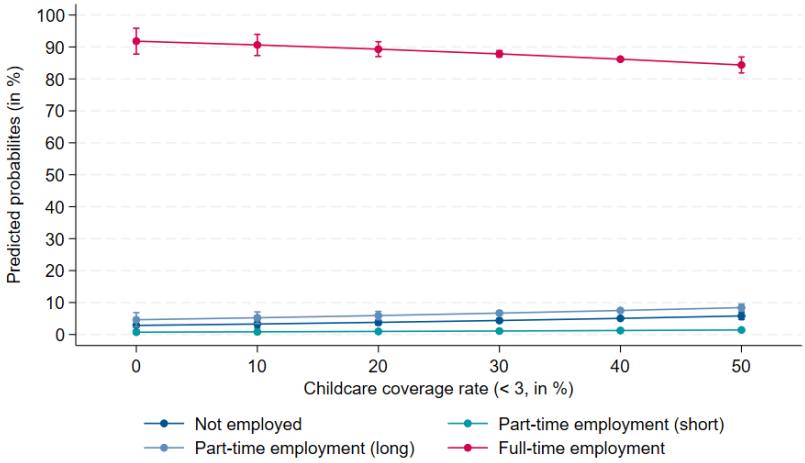
B: Time spent with child

Notes: Subfigure A shows the share of parents reporting a childcare activity (either as a main or secondary activity) throughout the day. The shares of mothers and fathers are presented, grouped by whether the youngest child attends childcare. Subfigure B displays the share of parents who reported having a child present during their activities over the day. It illustrates both the shares of mothers and fathers who stated they were alone with the child, as well as the share where both the child and the partner were present during the activity. Both figures are based on 2022 time-use survey data, considering parents with the youngest child aged one to two years old, surveyed on a weekday, resulting in 2,156 observations.
Source: Own illustration based on data from the survey of the time use of the population 2022 of the statistical offices of the Federation and the Länder (Federal Statistical Office and Statistical Offices of the Federal States of Germany, 2022).

Fig. A.12: Predicted probability of parental employment when child is 12 to 35 months old conditional on childcare coverage rate for children below 3 years



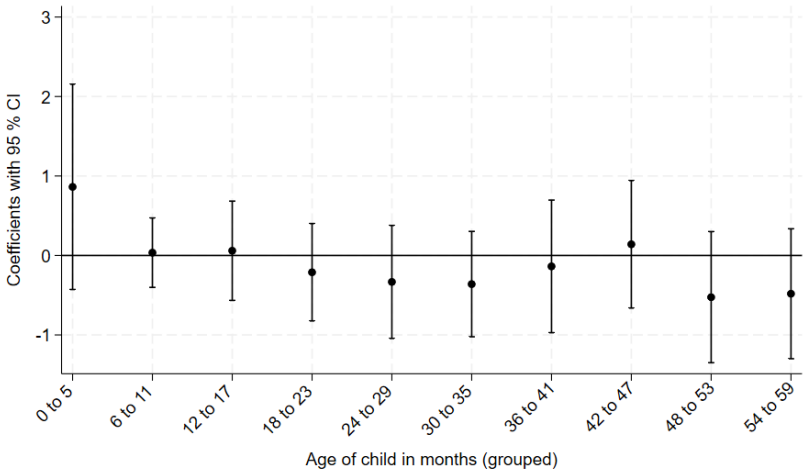
A: Maternal employment



B: Paternal employment

Notes: Coefficient estimates with 95% CI of the childcare rate on parental employment categories conditional on different childcare coverage rates. Estimates stem from separate estimations of eq. 1 using ordered logit models. All models include county and birth year fixed effects, as well as individual-level and county-level controls (see Appendix Table A.2). The dependent variables are measured when children are 12 – 35 months old. The scale of the y-axes differs between subfigures A and B.
Source: Own illustration based on data from the KiBS (Lippert et al., 2024), the Federal Statistical Office (Statistisches Bundesamt, 2023), and INKAR (Bundesinstitut für Bau-, Stadt- und Raumforschung, 2023).

Fig. A.13: Effects of childcare expansion for children under age three on mothers' role as main caregiver



Notes: Coefficient estimates with 95% CI of the childcare rate on an indicator of mothers being the main or sole caregiver on a weekday. Estimates stem from separate estimations of eq. 1 by age. All models include county and birth year fixed effects, as well as individual-level and county-level controls (see Appendix Table A.2).
Source: Own illustration based on data from the KiBS (Lippert et al., 2024), the Federal Statistical Office (Statistisches Bundesamt, 2023), and INKAR (Bundesinstitut für Bau-, Stadt- und Raumforschung, 2023).

A.3. A Collective Model of Parental Labor Supply

This appendix outlines a simple two-period collective household model that illustrates how childcare expansion can affect parental labor supply within households. The framework builds on the collective labor supply approach of Chiappori (1992) and its extensions to families with children (e.g., Blundell et al., 2005). Parents jointly choose labor supply and childcare allocations around childbirth while anticipating childcare availability in the second period, similar to the forward-looking labor supply models in Attanasio et al. (2008). The model abstracts from richer life-cycle features and focuses on the coordination margin created by the sequencing of parental leave and childcare availability.

Setup. A household consists of two partners, mother m and father f. Decisions are made over two periods. Period $t = 1$ corresponds to the first year after birth (the parental leave period), while period $t = 2$ corresponds to the following years when the child may enter formal childcare and the mother may return to the labor market.

In each period, parent $i \in \{m, f\}$ chooses market work h_{it} and direct childcare time a_{it}. In the empirical context considered in this paper, fathers typically exhibit strong labor market attachment and are frequently employed full-time even in the presence of young children. This institutional feature implies that upward adjustments in fathers' labor supply are limited.

Preferences. Parents derive utility from consumption and direct childcare time and experience disutility from market work. Period utility is assumed to be increasing and concave in consumption and childcare time, and decreasing and convex in market work:

$$u_{ic} > 0, \quad u_{icc} < 0, \qquad u_{ia} > 0, \quad u_{iaa} < 0, \qquad u_{ih} < 0, \quad u_{ihh} < 0.$$

These assumptions imply that parents value time spent with their child but at a diminishing rate, while the marginal disutility of market work increases with hours worked.

Budget constraints. Household consumption c in period 1 is

$$c_1 = w_m h_{m1} + w_f h_{f1} + B_1,$$

where w_i denotes wages and B_1 parental leave benefits.

In period 2, parental leave benefits expire and formal childcare becomes available at fee P, so household consumption is

$$c_2 = w_m h_{m2} + w_f h_{f2} - Ps,$$

where s denotes formal childcare used in period 2.

Childcare requirement. Childcare needs must be satisfied in each period. Let R_t denote the total childcare requirement in period t and a parental time with the child. In period 1, childcare is entirely provided by parents:

$$a_{m1} + a_{f1} = R_1.$$

In period 2, formal childcare s can substitute for parental childcare time:

$$a_{m2} + a_{f2} + s = R_2.$$

Time constraints and childcare logistics. Parents allocate time between market work and direct childcare. Total time is normalized to one.

In period 1, time constraints are

$$h_{m1} + a_{m1} \leq 1, \qquad h_{f1} + a_{f1} \leq 1.$$

In period 2, formal childcare generates logistics and coordination requirements, such as drop-off, pick-up, and communication with the childcare provider. Let τs denote this time requirement with $\tau > 0$, and let $\eta \in [0, 1]$ denote the share borne by parent f (i.e. the father). This allocation may reflect work schedule flexibility, institutional constraints, or the intra-household allocation of responsibilities. A such it may also reflect a preference or social norm parameter which, due to its slow-moving nature, is treated as constant across the two periods. Time constraints in period 2 are therefore

$$h_{m2} + a_{m2} + (1 - \eta)\tau s \leq 1, \qquad h_{f2} + a_{f2} + \eta\tau s \leq 1.$$

Hence, formal childcare relaxes the direct childcare constraint but may also reduce available work time through coordination demands.

Collective household problem. Households maximize a weighted sum of parental utilities:

$$\max \sum_{t=1}^{2} \Big[\lambda(s)u_m(c_t, h_{mt}, a_{mt}) + (1 - \lambda(s))u_f(c_t, h_{ft}, a_{ft})\Big],$$

where $\lambda(s) \in (0, 1)$ denotes Pareto weight of parent m (i.e. the mother) in the collective household problem. Following Chiappori (1992), this weight reflects the partners' relative bargaining position and depends on factors affecting their outside options. Greater childcare availability increases mothers' expected labor market attachment and earnings potential, implying

$$\lambda'(s) > 0.$$

Predictions. Under the assumptions above, an increase in childcare availability s generates the following predictions.

Prediction 1 (Maternal labor supply). Greater childcare availability in period 2 relaxes the household childcare constraint and strengthens the mother's bargaining position. Both forces tend to increase maternal labor supply in period 2:

$$\frac{\partial h_{m2}}{\partial s} > 0.$$

Prediction 2 (Fathers' labor supply). While increased childcare availability reduces required parental childcare, fathers in the institutional setting studied here typically already work full-time prior to childcare expansion.[27] At the same time, formal childcare strengthens the mother's bargaining position and generates coordination demands associated with the mother's return to work. If fathers bear a sufficient share of these demands (η large), fathers' labor supply declines:

$$\frac{\partial h_{f2}}{\partial s} \leq 0.$$

Prediction 3 (Anticipatory adjustments). Because households maximize utility jointly across periods, increased childcare availability in period 2 affects bargaining power and labor supply decisions already in period 1. Higher s may induce anticipatory adjustments already in period 1, such as shorter maternal leave durations and greater paternal leave-taking:

$$\frac{\partial h_{m1}}{\partial s} \geq 0, \qquad \frac{\partial h_{f1}}{\partial s} \leq 0.$$

These labor supply responses need not imply large changes in fathers' direct childcare time. If households derive positive utility from parental childcare, increased formal childcare will primarily operate through labor supply adjustments without inducing substantial changes in paternal direct caregiving.

[27] In our data, more than 90 percent of employed fathers with children aged 12–35 months work full-time, leaving limited scope for further increases in labor supply.

A.4. Back-of-the-Envelope Calculation of Offsetting Effects in Household Labor Supply

This appendix provides back-of-the-envelope calculations to quantify aggregate labor supply effects and the offsetting effect due to changes in fathers' labor supply following childcare expansion.

We use the estimated effects of a 10 pp increase in childcare availability on parental employment outcomes for children aged 12 – 35 months (see Tables 2 and 3).

To convert probability changes into hours, we assume the following weekly hours for each employment category:

- Full-time employment (p_{FT}, >34 hours): 38 hours/week
- Long part-time employment (p_{LPT}, 20 – 34 hours): 27 hours/week
- Short part-time employment (p_{SPT}, 1 – 19 hours): 15 hours/week

Let Δp_k denote the change in the probability of employment category k and $\bar{h}_k$ the corresponding weekly hours. The implied change in expected weekly hours is

$$\Delta h = \sum_k \Delta p_k \cdot \bar{h}_k.$$

For mothers, the estimated changes in employment probabilities are $\Delta p_{FT} = 0.023, \Delta p_{LPT} = 0.030, \Delta p_{SPT} = -0.010$. The implied change is therefore

$$\Delta h_m = 0.023 \cdot 38 + 0.030 \cdot 27 - 0.010 \cdot 15 = 1.53 \text{ hours/week}.$$

For fathers, the estimated changes are $\Delta p_{FT} = -0.018$ and $\Delta p_{LPT} = 0.017$. Because fathers' overall employment probability remains unchanged, the remaining probability mass is allocated to short part-time employment ($\Delta p_{SPT} = 0.003$). The implied change is therefore

$$\Delta h_f = -0.018 \cdot 38 + 0.017 \cdot 27 + 0.003 \cdot 15 = -0.18 \text{ hours/week}.$$

Combining both parents yields a net change in household labor supply of

$$\Delta h_{HH} = \Delta h_m + \Delta h_f = 1.53 - 0.18 = 1.35 \text{ hours/week}.$$

Thus, the paternal labor supply response to childcare expansion offsets roughly

$$-\frac{0.18}{1.53} \approx 12\%$$

of the maternal increase in weekly hours.