

# Crowded-out? Changes in informal childcare during the expansion of formal services in Germany

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## Abstract

Informal childcare care by grandparents, other relatives or friends is an important source of support in many Western countries, including Germany. Yet the role of this type of care is often overlooked in accounts of social policies supporting families with children, which tend to focus on formal childcare. This article examines whether the large formal childcare expansion occurring in Germany in the last two decades has been accompanied by similar or opposite trends in informal childcare usage. It argues that accounting for both formal and informal childcare can offer a more accurate assessment of defamilisation effects of family policies. Drawing on representative data from the German Socio-Economic Panel the analysis identifies long-run developments of childcare arrangements for children aged 1–10 between 1997 and 2020, offering for the first time a comprehensive picture of how families with children of different ages mix informal care and service provision. Results show that on average the expansion of formal childcare was not associated with an equal reduction in informal childcare,

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lending little support to the crowding-out hypothesis. Further analyses distinguishing between population groups with different propensity to use formal childcare reveal, unexpectedly, remarkable similarities in the use of informal care throughout the period examined. The only exception are families with a migrant background, who tend to use informal childcare less than their counterparts. The general trend is, however, one whereby informal and formal care are increasingly combined.

#### KEYWORDS

afternoon-care, childcare, defamilization, family policy, Germany, grandparental childcare, informal childcare, time trends

## 1 | INTRODUCTION

In the last decades policy and research interest in childcare has increased enormously (Hemerijck, 2017; Saraceno, 2011). There is now widespread recognition of the importance of childcare for the development of children and to enable parents—in fact, mothers—to enter and maintain paid employment. The provision and usage of childcare has been mainly assessed in terms of *formal* childcare, generally understood as consisting of services that are, at the very minimum, regulated, and most often subsidised by the state. Largely absent from this perspective is the notion that formal childcare is often part of broader childcare arrangements, which include *informal* childcare provided by grandparents, other relatives, friends or neighbours. Most families do indeed combine different forms of childcare, in what scholars have variously labelled as *childcare packages* (Brady, 2016; Brady & Perales, 2016), *jigsaw* (Wheelock & Jones, 2002) or *quilts* (Folk & Yi, 1994). Although there is research on informal childcare, and on childcare provided by grandparents in particular, the interaction between formal and informal is rarely made explicit.

In this article, we investigate whether an expansion of formal childcare services is accompanied by changes in informal provision and whether families with different resources differ in their mixing formal and informal childcare as supply of formal services increases. Examining the nexus between formal and informal childcare can offer insights into wider social policy debates. First, it provides direct evidence on the crowding-out hypothesis, which posits that when state-supported provision develops informal exchanges decline. Second, tracing changes in informal childcare uncovers shifts in childcaring responsibilities *within* family support networks and this broader outlook can offer a more accurate picture of defamilisation trends at macro institutional level (Saraceno & Keck, 2010; Zigel & Lohmann, 2021).

We use the example of Germany, a country where the increase of formal childcare services has been substantial and has involved a variety of services, from those caring for very young children to those for primary school-aged children. Whereas in 2006 only 14% of children under the age of three used formal childcare, by 2019 their enrolment rate was 34%; the hours spent by children in formal childcare has also expanded, with the proportion of children attending for longer than a morning session increasing from 75% in 2006 to 85% in 2019 (Autorengruppe Bildungsberichterstattung, 2020). By the same token, Germany has moved from an exclusively half-day school system to one where afternoon care is increasingly available, either because schools operate a full-day schedule or after school programmes are available, so that in 2018 50% of all primary school children received formal afternoon care compared to less than one in four in 2005 (Autorengruppe Bildungsberichterstattung, 2020). Germany is also a good case study because the use of informal childcare is widespread, involves predominantly grandparents, and extends to

school-age children (Bordone et al., 2017).<sup>1</sup> This raises the question as to whether the expansion of formal childcare has altered patterns of regular care provision across extended family members.

Drawing on data from the German Socio-economic Panel (SOEP) from 1997 to 2020 we examine how patterns of usage of formal and informal childcare have co-evolved over two decades of intense childcare policy changes, covering a longer time window than the few previous studies. Furthermore, while most of previous literature on childcare has focused on very young children, we consider families with children up to the age of 10. The inclusion of older children is important, because, as noted by Plantenga and Remery (2017) in their overview of out-of-school services in Europe, social policy scholarship has tended to overlook childcare for school-aged children, despite the fact that childcare needs are not fully met by compulsory education. We explore differences between families living in West Germany and those living in the eastern part of the country, where the formal childcare infrastructure has historically been more developed (Rosenfeld et al., 2004). While the rate of expansion of formal services has been similar in both parts of the country, work-care cultures have remained different, with much stronger preference for childcare by family members rather than by formal organisations in the West than in the East (Schober & Stahl, 2016). We further differentiate families by maternal education level and by migrant background, because take-up rates and the intensity of formal childcare remains stratified along these family characteristics (Jessen et al., 2020; Schober & Spiess, 2013). Although our results cannot necessarily be interpreted as the causal effect of formal services on informal childcare, they provide sound evidence of whether the more or less rapid pace in the take-up of formal services was mirrored by a similarly rapid reduction in their reliance on informal support and thus contribute to the evidence that challenges the crowding-out hypothesis. Moreover, our findings allow understanding whether families' actual childcare packages have become more diverse or, instead, more homogenous as the supply of formal childcare has increased, revealing society-wide trends in childcare arrangements over two decades.

## 2 | CROWDING OUT EFFECTS WITHIN CHILDCARE: CONCEPTUAL FRAMEWORK AND EVIDENCE

Formal and informal childcare can either substitute for or complement each other. When substitution effects prevail, state support for formal services 'crowds out' informal arrangements. Welfare state scholarship examined whether social solidarity displaces family solidarity and contested the 'crowding-out' thesis, suggesting intergenerational links were not necessarily becoming weaker in the context welfare state expansion (Balbo, 1987; Knijn, 2004; Kohli, 1999). Childcare was never the focus of that literature, but subsequent empirical research drawing on those concepts specifically looked at childcare provided by grandparents (Bordone et al., 2017; Hank & Buber, 2009; Igel & Szydlík, 2011). These studies have compared patterns of grandparental childcare across continental European countries and interpreted country differences through the variations in the availability of formal childcare infrastructure. Formal childcare was repeatedly found to be positively associated with the occurrence of grandparental childcare but negatively associated with its intensity, pointing to both complementarity and substitution between the two types of childcare. Yet static comparative analyses cannot rule out alternative explanations and cannot capture the temporal dimension that is intrinsic to crowd-in and crowd-out effects.

This in turn leaves unanswered the question as to whether public investment in formal childcare services displaces informal childcare provision, and if so for whom. From a policy perspective answering this question is important because it helps better assessing macro-level changes in family policies and the extent to which formal childcare results in a strong defamilization for all or only particular groups (Leitner, 2003). At the same time, examining possible disparities in crowding-out effects across population groups can help understand persistent differences in accessing formal childcare services, thus contributing to debates on the potential equalising role of formal childcare policies (Scherer & Pavolini, 2023). We expand on these two points in turn.

The concept of defamilisation aims to capture the extent to which state support reduces family dependencies (Lister, 2003, p. 172), and has been fruitfully applied to analyse country variations in family policy and outcomes

(Zagel & Lohmann, 2021), chiefly maternal employment (Bambra, 2007; Cho, 2014; Leitner, 2003; Saraceno & Keck, 2010; Zagel & van Winkle, 2022). Increasing state support for formal childcare services is considered a defamilisation policy, as it creates the option of providing and receiving childcare outside the family sphere. While the defamilisation effect of formal childcare services is unambiguous, its effects *within* the family sphere remain unclear. Defamilisation, although it implicitly refers to women and/or mothers, treats 'family' as a black box, failing to highlight the role of partners, extended family members or informal support networks (Cho, 2014; Mathieu, 2016; Saxonberg, 2013). This has prompted some scholars to suggest alternative concepts. Mathieu (2016), for example, has proposed 'demothering' to capture the extent to which mothers are freed from care responsibilities, whether by other family members or formal services. Tracing the evolution of informal childcare helps illuminate these distinctions. For example, if childcare is already 'demothered' through informal childcare, the expansion of formal services could reduce the need for informal childcare, shifting the boundary between family and societal support without affecting parents' caring patterns. Indirect evidence on this type of dynamic comes from the literature, mainly by economists, exploiting policy changes that create time and/or regional variations in increased access to formal childcare services to estimate effects on maternal employment. Two examples are Havnes and Mogstad (2011), who examined childcare expansion in Norway in the late 1970s, and Dujardin et al. (2018), who studied the increase in childcare places in Wallonia (Belgium) in the early 2000s. In both cases the very minimal effect on maternal employment was explained, somewhat speculatively, by formal services replacing informal arrangements, although actual informal childcare use was not directly investigated.

Turning to the potential equalising role of formal childcare, a key precondition is that access is universal across families with different resources and characteristics (Gambaro et al., 2015). However, evidence from many European countries points to a selective use of formal childcare (van Lancker & Ghysels, 2016). Studies on the use of multiple forms of childcare have reported mixed findings and shown that formal and informal childcare may be combined for different reasons, depending on the countries examined, their system of formal childcare services and the characteristics of the families considered. Informal childcare may regularly complement formal childcare when it allows extending working hours (Brady & Perales, 2016) or when it covers working shifts that are incompatible with the opening hours of day-care centres (Brady, 2016). This function is especially salient where part-time employment is not a viable option and/or childcare services operate very short hours. Flexibility was often found to be the distinctive feature of informal childcare, which however was more relevant when usage was on demand rather than regular—as examined in the present study. Beside its practical role of ensuring childcare coverage in a variety of circumstances, informal childcare may be also valued in itself, especially when provided by grandparents or family members. For example, Wheelock and Jones (2002) highlighted how parents cherished a childrearing practice that was shared across the generations and made sure they complemented formal childcare with care by grandparents. This finding concurs with evidence that elderly people consider their role to help their adult children by providing childcare (e.g. Pinazo-Hernandis, 2010).

Given that formal and informal childcare appear to be functionally equivalent, but to also maintain their specificities, we would expect families to vary in the way they combine them according to their needs and values. As Meyers and Jordan (2006) have proposed, childcare choices can be understood as 'accommodations' to several factors, chiefly among them family and employment demands, social norms, families' economic, social and cultural resources, and actual or perceived constraints in accessing supply. Insofar as these factors are stratified, resulting childcare choices will also be. In the context of services expansion, we can expect an aggregate increase in the usage of formal childcare services, but it remains unclear whether such pattern may be even across social groups and matched or offset by informal childcare. In Germany, among children under the age of three, those with a migrant background and those of relatively low educated mothers were substantially less likely to be enrolled in formal services (Jessen et al., 2020; Schober & Spiess, 2013). There was however less variation in the use of informal childcare: the overall share of children under three experiencing a mix of childcare types was generally low and increased only slightly in the first decade of the millennium (Stahl & Schober, 2018).

Building on these findings, the present study further interrogates the crowding out hypothesis and examines the increase of formal childcare services in the context of a paradigmatic policy change toward greater defamilization occurring in (West) Germany between 1997 and 2020 (Lewis, Campbell, et al., 2008; Lewis, Knijn, et al., 2008; Seeleib-Kaiser, 2016). The next section outlines the main changes affecting formal childcare.

### 3 | CHILDCARE POLICY CHANGES IN GERMANY

Historically, the level of publicly subsidised childcare has been low in West Germany under the assumption that mothers would be homemakers, available to take care of children either full-time in the first years of life or in the afternoon once they entered kindergarten or school (Leitner et al., 2008). By contrast, in East Germany a long-standing tradition of full-time working mothers meant that the supply of formal childcare services was much higher and so was their normative acceptance (Leitner et al., 2008). Formal childcare services included childcare centres for children aged 1 to three, centres for children aged three to six and all-day schooling including afternoon childcare for older ones. Against this background, the last 25 years have been characterised by a series of federal laws aimed at expanding formal childcare services in both West and East Germany, albeit starting from very different levels, and with important differences across age groups.

#### 3.1 | Childcare policy for toddlers (1–2 years of age)

Since 1992 parents in Germany have had a job protection right (*Elternzeit*) for the first 3 years of a child's life. In 2007 a new parental leave benefit (*Elterngeld*), set at 67% of former earnings and paid for a maximum of 14 months, replaced a means-tested flat-rate benefit paid for 2 years, with the explicit objective of accelerating mothers' return to employment (Huebener et al., 2019). The reform was complemented by the expansion of formal childcare for children aged one and over. In 2005, a federal law stipulated that children under the age of three should have access to formal childcare if parents were in employment, education or training, or actively looking for work (e.g., Zoch & Schober, 2018). A subsequent federal law funded a further expansion of services and, starting from August 2013, entitled children to formal childcare after their first birthday. Parents had, and often still have, to pay, but fees tend to be low and typically determined by family income and composition (Schmitz et al., 2017).

#### 3.2 | Childcare policy for pre-schoolers (3–6 years of age)

Children aged three had been entitled to a minimum of half-day in formal childcare since 1996 (Spiess, 2008). The 2005 and 2008 reforms recommended an extension to full-time places, which were and remain the norm in Eastern German states. Fees have been further reduced or abolished since 2005, making services more accessible. For this age group, formal childcare increasingly covered more hours of the day.

#### 3.3 | Childcare policy for children of primary school age (7–10 years of age)

In West Germany, primary schools have traditionally been organised on a morning-only basis, with children coming home at lunch time. In East Germany, by contrast, often formal care activities extended the school day. In 2003 the federal government initiated the expansion of afternoon programmes for primary school children (Gambaro et al., 2019). Implementation started gradually and continued at a sustained pace in the second decade of the millennium in both Western and Eastern states (Autorengruppe Bildungsberichterstattung, 2020).

Based on these reforms, we propose to divide the years from 1997 to 2020 into three phases. Rather than a proper historiographical periodization, the division serves to organise the empirical analysis taking into account policy changes in formal childcare.

1. Phase I (1997–2005) represents the period before the start of the general and significant expansion of formal childcare for all age groups;
2. Phase II (2006–2013) includes the years characterised by a significant expansion of formal childcare for children in all three age groups. In particular, there was a large increase in places for toddlers and in all-day places for pre-schoolers. For children of primary school age, these years saw the start of the ‘all-day school’ expansion.
3. Phase III (2014–2020) is characterised by slower change in the number of places available for toddlers and pre-schoolers, but still a relatively large increase in the number of ‘all-day school’ places.

## 4 | DATA AND ANALYTICAL APPROACH

We draw on the German Socio-Economic Panel (SOEP), a representative household panel survey that has been conducted annually since 1984 and which currently surveys about 30,000 people in almost 15,000 households (Goebel et al., 2019). The survey has regularly collected information about the childcare arrangements among surveyed families. We use waves from 1997 to 2020, but exclude 1998 and 2003 because questions on informal childcare were not asked. Our time window covers all the major policy changes related to childcare and stops just before the outbreak of the Covid-19 pandemic, whose effects on childcare patterns are complex.

The analytical sample includes 1- to 10-year-old children. We do not consider children in their first year of life because they were almost exclusively cared for by their parents during parental leave, and not directly affected by the expansion of formal childcare. We divide our sample of children in three age groups:

1. Children aged one to three, ‘toddlers’, including 19.475 observations;
2. Children aged three and above but not yet in school, ‘pre-schoolers’, including 34.301 observations;
3. Primary school children, ‘school children’, including 50.216 observations

All analyses are conducted separately for each age group.

Our main variables of interest are formal and informal childcare. We measure usage of formal childcare differently across the three age groups. For 1- and 2-year-olds (toddlers) usage of formal childcare services is a binary indicator equal to one if the child attends centre-based care or is with a childminder, irrespective of the number of hours. For children from age three to school entry (pre-schoolers) a binary indicator measures whether they attend centre-based care full-time. The indicator essentially captures full-time attendance vs. half-day attendance because there is too little variation in simple attendance rates, which have been above 90% since 1998 and have further increased since 2006 (Federal Statistical Office, several years<sup>2</sup>). Among primary school children the binary indicator of formal childcare captures whether they use afternoon services as opposed to attending school in the morning only. We refer to this type of service as ‘all-day school’ provision. Information on informal childcare usage is based on a question on whether the child was regularly cared for by ‘other persons outside the household, such as grandparents, other relatives, neighbours or other persons’. For a subsample of children this information is broken down to individual categories of informal carers, revealing that for approximately three quarter of cases it was grandparents who provided informal care.

Beside examining formal and informal childcare separately, we look at combinations of formal and informal childcare, or ‘childcare packages’. Because usage of formal service is defined differently across age groups, the exact childcare configuration captures by each childcare package varies. Specifically, combining formal and informal childcare means that informal childcare was used on top of: (i) any kind of formal childcare for toddlers; (ii) full-time

formal childcare for pre-schoolers; (iii) all-day schooling for primary school children. Information on hours spent in the different childcare arrangement was elicited only since 2003 and for some age groups only (Spiess, 2011), therefore we cannot not consistently explore intensity over our entire analysis period.

As we explore time trends in the use of informal and formal childcare, the main independent variable consists of three period indicators, corresponding to the three policy phases described earlier: phase I, which serves as reference category to assess change; phase II which coincides with the expansion of formal services for toddlers and pre-schoolers; phase III which sees the increased availability of all-day schooling.

In seeking to understand whether formal childcare had crowded out informal childcare for some groups and not for others, we divide our sample of children by East and West, by maternal education and by migrant background, as previous research for Germany indicated that formal childcare usage varies along these dimensions. In multivariate analyses we additionally control for mother's age and number of children in the households to account for possible composition changes in family formation processes. We also include the age of the child in months and its square. All variables are described in Table S1 in the Supplemental Material.

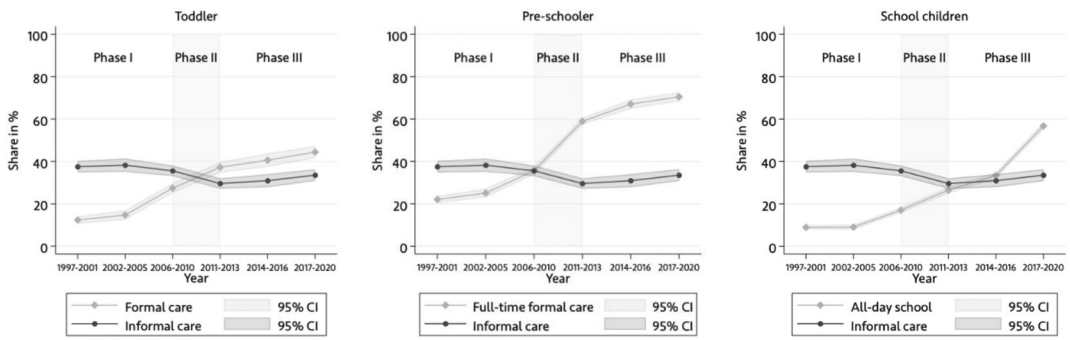
The analysis proceeds in two parts. The first reports time trends in formal and informal childcare usage for each age group separately. Graphically juxtaposing the two trends allows us to visually establish whether crowding out took place. We also estimate the direction, magnitude and statistical significance of changes between policy phases by running pooled logistic regressions models on a child's probability of receiving (i) formal and (ii) informal childcare on the three period indicators, including additional controls. These results are reported in the Supplemental Material (Figure S1 and Table S2) and commented in the text. To better interpret the results, we also graphically report the prevalence of different childcare packages by policy phase, uncovering whether the two forms of childcare have increasingly complemented each other.

In the second part of the analysis, we investigate time trends in the use of formal and informal childcare again separately for each age-group but this time distinguishing between population groups, defined by region, maternal education and migrant background. Each population group is examined separately, running pooled logistic regressions models on a child's probability of receiving (i) formal and (ii) informal childcare on the three period indicators interacted with the group indicator, and including additional controls. We formally contrast estimated predicted probability to establish the direction, magnitude and statistical significance of changes over time, and additionally test whether changes over time differ between groups. An example can better clarify our approach: we test whether formal childcare usage among toddlers in West Germany differs in policy phase II compared to policy phase I, and how this difference over time compares to the same time difference occurring in East Germany. These group contrasts can further probe whether a group displaying a large increase in formal childcare usage has correspondingly larger decrease in informal childcare. Differences reported and commented in the text are invariably statistically significant at least at the 10% level, although this is not explicitly stated for ease of exposition, but reported in the relevant tables in the supplemental material. All analyses were conducted in STATA 17, using weights to account for the sample design of SOEP. Errors were clustered at household level.

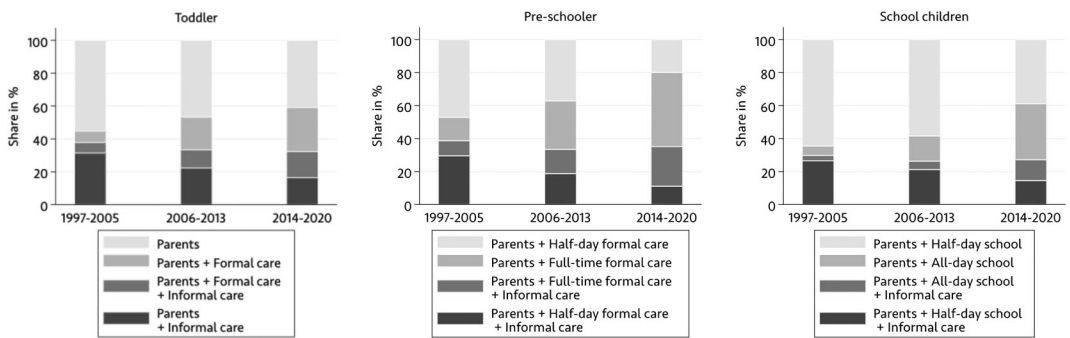
## 5 | RESULTS

### 5.1 | Trends in formal and informal childcare usage over time

Figure 1 plots the sample means of each care mode over time and against the three policy phases outlined earlier, pooling three survey years to increase sample size. The usage of formal childcare services increased conspicuously for all age groups, albeit with different timing, in line with our definition of phases. The usage of informal childcare did not display substantial changes, although a slight downward trend is noticeable. Estimates of the direction, magnitude and statistical significance of the changes over time are reported in Table S2, and confirm a large change in formal childcare usage. In 2014–2020 the usage of formal childcare was 33, 37 and 27 percentage points higher than



**FIGURE 1** Formal and informal childcare usage over time. The graphs show the sample means and the 95% confidence intervals over time; results are weighted. *Source:* SOEP v37, authors' calculations.



**FIGURE 2** Childcare packages over time. **For toddler**, the base arrangement was parental care only, to which various combination of formal and informal care could be added to result in the above displayed four categories: (i) Parental care only; (ii) Parental care and formal childcare; (iii) Parental care, formal childcare, and informal childcare, and (iv) Parental care and informal childcare only. **For pre-schoolers**, the base arrangement consisted of parental care and half-day formal childcare, resulting in the displayed four-fold combinations of parental care and: (i) half-day formal childcare; (ii) full-time formal childcare; (iii) full-time formal childcare and informal childcare; and (iv) half-day formal childcare and informal childcare. **For school children**, the base arrangement was half-day school in the morning and parental care in the evening, so that the following categories were derived: (i) half-day school; (ii) all-day school; (iii) all-day school and informal childcare, and (iv) half-day school and informal childcare. Results are weighted. *Source:* SOEP v37, authors' calculations.

in 1997–2005 for toddlers, pre-schoolers and school children respectively. By contrast, the decline of informal childcare was barely significant for toddlers, and of 6 and 8 percentage points for pre-schoolers and school children respectively, suggesting only a small crowding-out.

Patterns in overall childcare arrangements can further explain these changes. Figure 2 reports the prevalence of four childcare packages, with the two darkest shades both including informal childcare usage, either on its own (black shade) or in combination with formal services (dark grey shade). Two findings emerge: first, the expansion of formal childcare services only minimally dented overall informal childcare provision, but greatly reduced childcare provided by parents only. Second, informal childcare has been increasingly used alongside formal services (see also Table S3).

While these two findings applied to all age groups, some distinctive patterns based on child's age remained. Among toddlers, exclusive parental care declined but remained the most common care arrangement, at 41% in the last phase 2014–2020. Exclusive informal care, on the other hand, went from being the second most common arrangement to the least used one, suggesting that parents of toddlers increasingly relied on formal services. Among



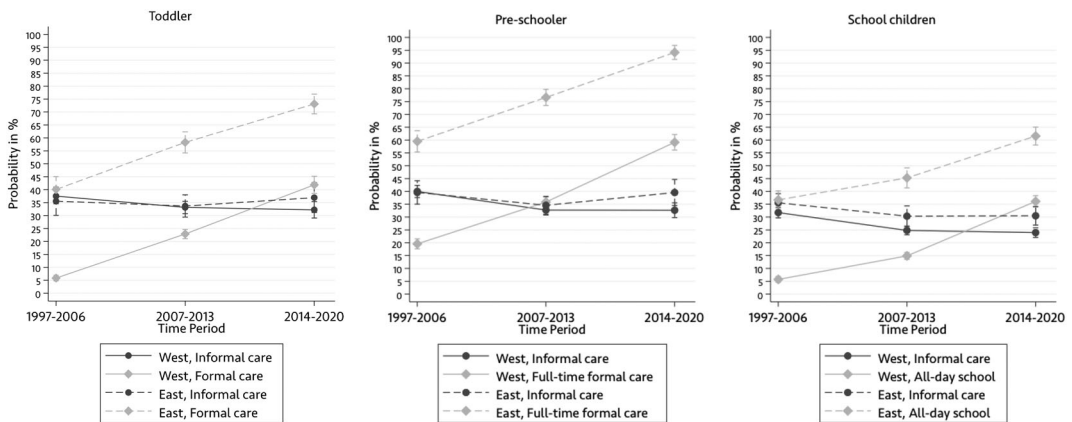
pre-schoolers there has been a very large reduction using formal childcare services on a part-time basis only. In 2014–20, 70% of pre-schooler were attending formal services on a full-time basis, and 24% were nonetheless receiving regular informal childcare of top of their full-time attendance. Findings for school-age children were very similar to those of pre-schoolers, although combining formal and informal childcare was less common.

The finding that informal childcare has, over the years, been increasingly used alongside formal services raises the question as to whether its intensity declined. On the basis of the available datapoints, informal childcare appeared to have remained between 8 and 6 h a week, with no downward trend (Supplemental Material Figure S2 and Table S4). This finding dovetails with results from other data sources indicating in Germany informal childcare by grandparents is mainly on a weekly basis (Bordone et al., 2017; Zanasi et al., 2023).

Taken together these findings do not point to a crowding-out effect: the expansion of formal childcare was not matched by a corresponding decline in informal childcare. With approximately one third of all children receiving it, informal childcare remained a common experience, although increasingly made alongside attending formal childcare.

### 5.2 | Variations by population groups

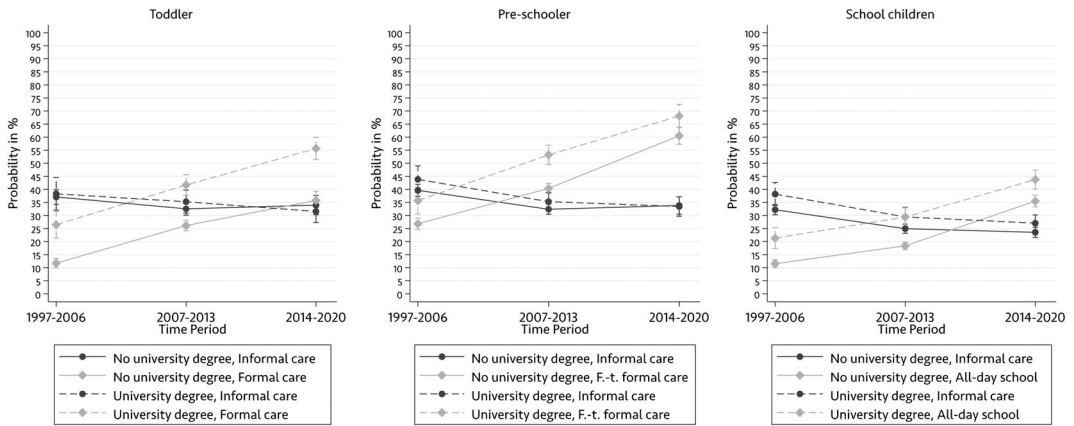
To further probe this finding, we run logistic regressions on formal and on informal childcare and include interactions between the three time-periods and population groups. We report the interaction effects graphically, to show whether time trends for the different groups were parallel or not. Formally tested differences are reported in the Supplemental Material. We start contrasting families living in East and West Germany. Given that the two parts of the country differ in their prevailing work-care cultures, it could be that, as formal provision grew, usage of informal childcare progressively diverged. Results in Figure 3 however point to strong similarities. Specifically, the increase in formal childcare was parallel in the two parts of the country, albeit starting from very different levels. Second, informal childcare usage in East and West remained fairly constant over time. Do time trends in the use of both types of childcare in eastern and western states differ? We do find neither substantive nor statistically significant difference between trends in East and West, with the only exception of the slight decline in informal childcare among pre-schoolers in West Germany, which did not appear in the East (Supplemental Material, Table S5). Leaving aside variations over time, the finding that East and West Germany displayed similar levels of informal childcare contrasts with



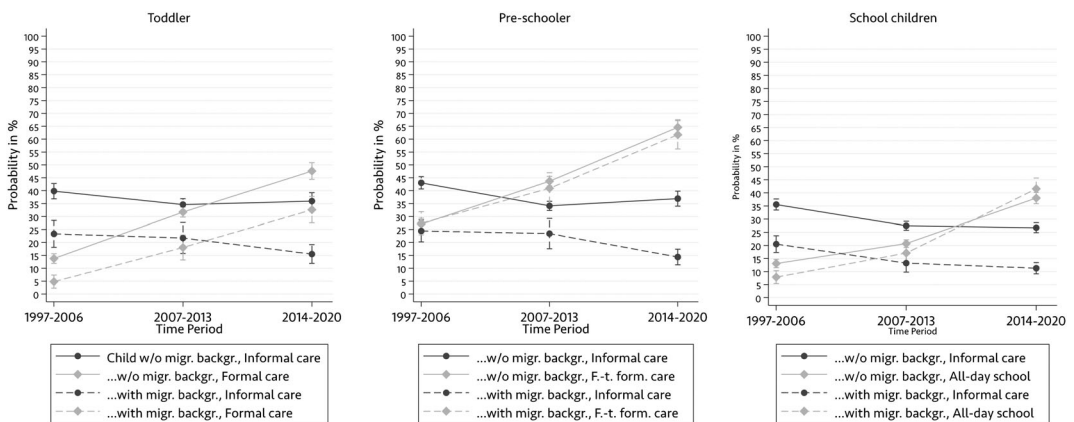
**FIGURE 3** Predicted probabilities of formal and informal care over time and age group by region. The graphs show predicted probabilities estimated by region using logit regressions; further control variables: Mother’s birth cohort, child age, age2, number of children in household; standard errors were clustered at the mother level; results are weighted. Source: SOEP v37, authors’ calculations.

comparative evidence that informal childcare usage is lower where enrolment in formal services is higher, suggesting that in Germany informal and formal childcare may be fairly independent from one another.

In order to uncover possibly diverging patterns, we explore differences across families with different resources, captured by maternal educational qualification and parents' migrant background. We compare formal and informal childcare usage among children whose mother had a university degree to those whose mother had a lower qualification (Figure 4). Time trends were always parallel between the two groups, and the differences in slopes were never significant (Supplemental Material, Table S6). As in the previous comparison, differences concerned levels rather than trends. Mothers with university degree were consistently more likely to use formal childcare than those with lower



**FIGURE 4** Predicted probabilities of formal and informal care over time and age group by maternal education levels. The graphs show predicted probabilities estimated by maternal education level using logit regressions; further control variables: Mother's birth cohort, child age, age2, number of children in household; standard errors were clustered at the mother level; results are weighted. *Source:* SOEP v37, authors' calculations.



**FIGURE 5** Contrasting time trends between children with migrant background and children without migrant background. The graphs show predicted probabilities estimated by the child's migrant background using logit regressions; further control variables: Mother's birth cohort, child age, age2, number of children in household; standard errors were clustered at the mother level; results are weighted. A child is considered having a migrant background when both parents are not from Germany. As soon as one parent is German, the child is not considered having a migrant background. *Source:* SOEP v37, authors' calculations.

qualifications, despite a similar use of informal childcare, pointing to a certain degree of complementarity between these two forms of childcare.

Lastly, we explore differences by the migration status of children's parents (Figure 5). Starting from formal services, the differences in levels and trends varied by age group. Toddlers of immigrant parents not only displayed a lower take up of formal services, but also a less rapid growth—the enrolment gap between the two groups became bigger over time. However, the decrease in informal childcare was similarly small in the two groups (Supplemental Material, Table S7). Among pre-schoolers, pattern of usage of formal services was almost overlapping—children of immigrants increased their usage of full-time childcare as much as their peers, starting from a very similar level. Yet informal childcare declined more rapidly among immigrant groups. Among school children, those with migrant parents had an initial slightly lower take up of formal services, but a more rapid growth resulting in higher enrolment in all-day schooling in the third period, when expansion of school afternoon services occurred. Usage of informal childcare displayed a similar downward trend in both groups.

Overall, differentiating the analyses by groups casts doubts on the prevalence of crowding out effects. For one thing, differences in level of usage across groups did not support the notion that families who relied more on formal childcare were less likely to use informal childcare. For another, differences in time-trends whereby usage of formal service has grown more rapidly for one group than the other were never matched by an equally rapid decrease of informal childcare. In none of the contrasts examined, trends in formal service usage were the mirror-image of trends in informal childcare usage. These results also suggest no divergence across population groups in their usage of formal and informal childcare. Although formal childcare services remain more accessible in East than in West Germany, their take-up has increased at a similar rate across all groups. Taken together these findings rule out increasing divergence in the overall childcare package that children experience. Mixing both formal and informal childcare has become increasingly common, and this change has occurred among children of all ages and backgrounds examined.

### 5.2.1 | Robustness checks

We performed a number of additional analyses (see Supplemental Material). They allowed us to dispel three concerns. First, we excluded that childcare by grandparents had become more available over time, through the increasing likelihood of grandparents to live close to their grandchildren (Table S8). We re-run analysis on the smaller sample for which information on grandparents' proximity was available: trends in the use of formal and informal childcare did not vary substantially (Figures S3, S4.1 and S4.2). Second, we could rule out that results were sensitive to our periodization cut-offs. Third, we checked that contrasting families by maternal employment (Figure S5 and Table S9), poverty risk (Table S10) or partnership structure did not lead to different findings (Table S11).

## 6 | DISCUSSION AND CONCLUSION

In this article, we scrutinised the crowding-out hypothesis by taking the long view on formal and informal childcare in Germany. Our objective was to ascertain whether the expansion of formal services was accompanied by divergent trends in formal and informal childcare, as posited by the crowding-out hypothesis. In contrast to previous studies, our analysis spanned more than 20 years, included children aged up to 10 years, and explicitly examined variations across population groups with different propensities to use formal childcare. Specifically, we explore whether the more or less rapid pace in the take-up of formal childcare by each group was mirrored by a commensurate reduction in their reliance on informal support. Taken together, our findings comprehensively document the interplay between formal and informal childcare during two decades of substantial expansion of formal services.

Our results, based on a representative panel study, show little evidence of crowding-out effects. Instead, we observed an increasing share of families combining formal and informal childcare. The two forms of childcare thus maintained distinct roles and families combine them possibly to match their values and to meet different needs (Wheelock & Jones, 2002). Given that informal childcare largely coincided with grandparental childcare, our findings are in line with recent results, indicating no change between 2004 and 2020 in grandparents' propensity to provide childcare, particularly in Germany (Zanasi et al., 2023).

Notably, our analysis of demographic subgroups revealed that those with swifter increases in formal childcare uptake did not exhibit a corresponding decline in informal childcare. Intriguingly, demographic subgroups' disparities in informal care trends were minimal, with the exception of families with migrant background. Families in which both parents were born outside Germany displayed lower utilisation of formal childcare for toddlers and of informal childcare for all age groups. Additional analyses<sup>3</sup> confirmed that migrant parents were less likely to have a grandparent living close by, so our result partly picked up a less extensive family support network. Insofar as informal childcare can help mothers to be in employment, immigrant mothers may be even more at disadvantage in accessing the labour market than previous studies suggested (Jessen et al., 2020; Van Lancker & Pavolini, 2023).

Our study is not without limitations. The patterns described cannot be interpreted causally: different data and methodologies are needed to identify the effect of childcare policies on families' informal support. Yet our results offer a comprehensive description of trends in childcare arrangements and help clarify their evolution covering several cohorts of children in Germany. Additionally, our data does not afford insights into the exact nature of informal childcare. It could be, for example, that as children have increasingly spent more time in formal childcare services, the activities done during informal childcare provision have changed. While we cannot exclude that, the little change in the number of hours per week of informal childcare did not point in that direction. Moreover, our measures capture *regular* childcare only, and therefore underestimate the childcare support by informal caregivers in case of emergencies, for example when a child is ill.

Despite these limitations, our study clearly shows that the expansion of formal childcare in Germany shifted childcare from the nuclear family unit to state-funded services, without altering patterns of informal provision by grandparents or other kin. The policy has reduced parents', in fact mothers', childcaring activities, and amounts to what Mathieu (2016) has defined as 'state-funded dematernalism'. This interpretation is in line with several studies documenting that mothers' labour market engagement in Germany has increased as a direct result of the greater availability of formal childcare, both in terms of higher employment rates and longer hours, albeit mostly within part-time employment (Bauernschuster & Schlotter, 2015; Gambaro et al., 2019; Müller & Wrohlich, 2020; Zoch, 2020). Such de-mothering did not result in a defamilisation of informal care, as formal and informal childcare were 'packaged' together (Knijn, 2004), most likely because extended family members were willing and available to look after dependent children.

Our results stand in contrast to those reported by Havnes and Mogstad (2011) on Norway after the childcare reform of 1975 and the results by Dujardin et al. (2018) on Wallonia since the early 2000s. Historical institutional accounts of the two countries help further understand these differences. In Norway the ideal of professional childcare (Kremer, 2007) has historically been fairly strong and further boosted by the policy debates culminated in the 1975 reform expanding childcare services (Leira, 1992, Ch. 4). At the time, informal childcare was provided mainly by unlicensed childminders, who were progressively substituted by formal services and eventually also regulated and supported by the state (Ellingsæter & Gulbrandsen, 2007; Leira, 1992). In Belgium, on the other hand, inter-generational childcare had a stronger tradition, with families in which grandparents provide childcare eligible to a small, but symbolically important, tax-relief (Kremer, 2007, p. 198). In both cases thus the expansion of formal services occurred in a context in which informal childcare arrangements were used by mothers to enter paid employment. This was never the case in West Germany, where part-time was and largely continues to be *the* way mothers reconcile paid work and family responsibilities (Barth et al., 2020; Lewis, Campbell, & Huerta, 2008). Even in East Germany, where full-time employment among mothers had been the norm, working part-time work has been on the rise (Barth et al., 2020).

It is beyond the scope of our study to assess the role of current childcare arrangements in Germany, and of the combining of formal and informal childcare in particular, in relation to other family outcomes, such as maternal employment or child development (but see Barschkett et al. (2022) for such study on Germany). Nevertheless, our study gives support to the notion of specialisation or functional differentiation between family and the state, whereby the two forms of childcare can adjust to one another and be combined. Policy and practice ought to be attuned to these findings. As practitioners may increasingly meet informal child carers at the school or nursery gates, they may need to adapt their information sharing and involvement strategies. Policy makers on the other hand may need to consider caring responsibilities stretching beyond nuclear families and to reflect on the forces influencing the availability of complementary informal childcare for the future. For example, pension and housing policies are likely to affect retirement and residential choices respectively, ultimately contributing to whether grandparents are available to provide childcare. Specifically, the policy goal of increasing full-time employment among mothers with adult children is likely to reduce the availability of informal carers. Elsewhere we have reported that in Germany parents of children below school age express a desire for greater involvement of grandparents in childcare (Barschkett et al., 2022, pp. 61–62) and, symmetrically, there is evidence that grandparents enjoy and value their childcare contributions (Pinazo-Hernandis, 2010). The role that informal childcare plays in the lives of families appears thus to merit greater attention in the policy arena.

Childcare services expansion can move the boundary between nuclear family responsibilities and societal responsibility, as indeed it has been the case in Germany. Yet these changes need also to be understood in relation to the wider patterns of support within extended families and social support networks.

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## CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

The data that support the findings of this study are openly available and can be accessed through the SOEP Research Data Center ([https://www.diw.de/en/diw\\_01.c.601584.en/data\\_access.html](https://www.diw.de/en/diw_01.c.601584.en/data_access.html)). The data are: Sozio-oekonomisches Panel (SOEP), Version 37, Daten der Jahre 1984–2020 (SOEP-Core v37, EU-Edition). 2022. DOI: 10.5684/soep.core.v37eu.

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## ENDNOTES

<sup>1</sup> The role of non-kin informal carers is overall negligible, in contrast to other countries where the use of paid migrant informal carers as nannies, au pair or babysitters, is much more common Adamson (2017).

- <sup>2</sup> See [https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Soziales/Kindertagesbetreuung/\\_inhalt.html](https://www.destatis.de/DE/Themen/Gesellschaft-Umwelt/Soziales/Kindertagesbetreuung/_inhalt.html) (download: April 2023). Data for 1997 are not available.
- <sup>3</sup> Not shown but available upon request.

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### Data

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### SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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