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Economic Inequality in Parental Investments:
A Dual Perspective on Time and Financial
Resources

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ABSTRACT

Using data from the German Time Use Survey (2022) and the German Expenditure Survey (2018), this thesis explores how parental time and financial investments in Germany vary across the child's life course and between four groups: lower parental education, risk of poverty, single par, and migration background. The analysis focuses on developmentally enriching forms of investment that foster child development. Results show that parental time and money shift from basic care and consumption toward education-focused investments as children grow older. Substantial social disparities emerge: children from less-educated and low-income families receive significantly less developmentally enriching time and money, particularly in reading, educational childcare, and tutoring. These gaps appear to reflect suboptimal prioritization rather than purely resource scarcity. By contrast, single parents tend to allocate their limited resources strategically, emphasizing high-value activities such as reading and educational support. Differences among families with a migration background are comparatively small.

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Chapter 1

Introduction

The family is widely recognized as a primary context shaping child development (Cunha et al., 2006; Todd and Wolpin, 2007). Parental investments, both financial and time-related, are considered crucial inputs in the production of human capital and vary with a range of endogenous and external family factors. Despite this broad consensus, intra-family dynamics and structures remain difficult to observe, as parental behaviors, interactions, and the division of responsibilities occur largely within the private sphere of the household. Evidence from the United States shows that parental behaviors and the types of activities parents engage in with their children vary substantially by socioeconomic status, including maternal education (Guryan et al., 2008; Kalil et al., 2012a), household income (Kornrich, 2016; Schneider et al., 2018), and family structure (Hastings and Schneider, 2021). However, evidence on families with a migration background remains limited, and comparable analyses for Germany are largely missing.

Building on this literature, this thesis investigates how parental investments in children evolve over the course of childhood and how these patterns differ across socioeconomic and sociodemographic groups in Germany. The analysis focuses on four key groups often considered disadvantaged: single parents, families at risk of poverty, non-academic households, and families with a migration background.

The thesis aims to provide a descriptive overview of trends and disparities in both time and financial investments. The following research questions guide the analysis:

- (i) *How do parents' time and financial investments in their children evolve over the course of childhood (from birth to age 18), both in terms of quantity (how much time is spent) and quality (what kinds of activities are undertaken)?*
- (ii) *How do these parental investment patterns differ across the four socioeconomic and sociodemographic groups?*

Understanding parental investments is essential, as they represent a central mechanism through which socioeconomic inequalities are transmitted across generations. Differences in how parents allocate their time and financial resources shape children's cognitive, emotional, and social development and ultimately their educational attainment and life chances (Kalb and Van Ours, 2014; Price and Kalil, 2019a). Understanding how these investments vary across social groups is therefore crucial for assessing the extent to which all children in Germany can realize their developmental potential. Promoting this potential, regardless of family background or socioeconomic status, is not only a matter of social justice and equality of opportunity but also essential for economic growth and innovation in a country that relies heavily on its human capital.

However, despite this importance, evidence suggests that opportunities in Germany are still far from equally distributed. As noted by the OECD, social mobility in Germany remains lower than in most other advanced economies (Csathó, 2023). Recent empirical evidence shows that a 10% increase in parental income rank is associated with a 5.2% higher probability of the child obtaining an upper secondary (A-level) degree, underscoring the importance of examining in greater depth the differences in parental behavior and investments across German families (Dodin et al., 2024).

This thesis contributes to the literature by providing new evidence on socioeconomic differences in parental investments in Germany, a context that differs markedly from the U.S. due to its extensive childcare and family policy system. It further advances the literature by adopting a child-level perspective that captures total parental time investments from both parents, made possible by the unique structure of the German Time Use Survey. Finally, the thesis offers a comparative analysis across four disadvantaged groups, providing policy-relevant insights into inequalities in children's developmental environments.

This thesis draws on detailed data from the German Time Use Survey (ZVE) to examine parental time investments at the child level, capturing how the amount and quality of time a child receives evolve with age. To analyze parental financial investments, the German Income and Expenditure Survey (EVS) is employed. Differences in both time and financial investments across disadvantaged groups are estimated using OLS regressions.

The findings reveal that children of lower-educated parents receive less high-quality, developmentally oriented time investments. Single parents, despite their more limited available time, appear to compensate for the absence of a second caregiver by allocating a larger share of their time to educational and enriching activities. Children from families at risk of poverty not only experience lower time investments but also face disadvantages in financial resources, particularly regarding extracurricular activities and private tutoring.

Chapter 2 reviews the existing literature on differences in parental investments across

the four defined disadvantaged groups. As the data do not include direct child outcome measures, Chapter 3 develops a developmental framework that classifies financial and time investment categories according to their potential for developmental enrichment. This framework is subsequently applied to the data to categorize parental activities and expenditures into corresponding investment groups. The following sections then describe the data preparation process, the construction of these investment groups within the datasets, and the methodological approach used for the empirical analyses. The results section begins by outlining how the composition and quality of parental investments evolve throughout childhood. It then presents, for each disadvantaged group, (i) differences in parental time investments and (ii) differences in financial investments. Robustness checks conclude the empirical analysis. The thesis closes with a discussion of the main findings, policy implications, and recommendations.

Chapter 2

Literature review and contribution

This chapter provides an overview of the literature on variations in parental time and financial investments across different socioeconomic and sociodemographic groups. The discussion is organized around four main dimensions: education, income, migration background, and family structure. It concludes by identifying research gaps and delineating my contribution to the existing literature.

2.0.1 Education gradient in parental investment

That highly educated parents spend more active time with their children has already been shown in a broad strand of literature (Guryan et al., 2008; Hill and Stafford, 1974; Kalil et al., 2025; Sayer et al., 2004).

Guryan et al. (2008) show, using data from the American Time Use Survey (ATUS), that maternal childcare time increases with education. This positive maternal education gradient is accompanied by a decrease in time spent on housework and leisure among higher-educated mothers. Guryan et al. (2008) interpret this as a distinctive behavioral pattern, where time spent with children is viewed as an investment in the child's human capital. Highly educated parents perceive no market alternative that could substitute for these investments. Building on this, Kalil et al. (2012b) show for the U.S. context that highly educated mothers adjust their time investments according to the "developmental gradient," reflecting children's changing needs as they grow. Parents focus on basic care and play during ages zero to two, on teaching and school-preparation activities between ages three and five, and on management tasks from ages six to thirteen. The differences are particularly pronounced among college-educated mothers. Her analysis focuses on only children up to age 13 and considers only primary activities. Kalil et al. (2012b) also

confirms the findings of Hurst and Jacob (2021) and Sacks et al. (2010): The educational differences in parental time use are mainly driven by families with very young children.

Several studies report widening gaps over time in parental time investments by maternal education Altintas (2016), Ramey and Ramey (2009). Kalil et al. (2016) find similar patterns for activities such as reading and educational play, though these disparities appear to have stabilized since 2016.

Jessen et al. (2022), who use the same dataset as this thesis, find that a child's attendance in daycare reduces total mother-child time by about 26 % for lower-educated and 16 % for higher-educated mothers. However, the reduction in active parenting time is only around 10 % for both education groups. In line with this thesis, their analyses of only children up to age six further reveal that lower-educated mothers spend on average 125 minutes per day in active parenting activities, compared to 140 minutes among higher-educated mothers.

2.0.2 Income gradient in parental investment

A large body of research demonstrates that parental investments in children vary substantially by parental income level (Kaushal et al., 2011; Kornrich, 2016; Schneider et al., 2018). Kornrich (2016) shows that between 2006 and 2007, parents in the top income decile spent five times as much on their children as those with median household income. More recent findings confirm and extend this pattern: Bandelj (2025) finds that affluent families invest significantly more resources in their children's leisure activities, education, childcare, and financial assets. These financial disparities matter for children's development and educational outcomes. For instance, children from high-income families in the United States are far more likely to attend expensive private SAT preparation courses or receive one-on-one tutoring than those from lower-income families (Buchmann et al., 2010). Such differences contribute to what has been termed a "shadow education system," highlighting class-based disparities in parental spending on extracurricular educational support (Bray, 1999; Park et al., 2016). However, these U.S.-based findings cannot be directly transferred to the German context, where education is largely publicly funded. Nevertheless, expenditures on private tutoring outside the formal education system represent a comparable mechanism through which socioeconomic differences in educational investments may emerge. Schneider et al. (2018) provide robust evidence that class-based differences in financial investments in children are larger in U.S. states with higher income inequality. Importantly, the spending gap between high- and low-income parents has widened over time and is driven primarily by those in the highest income decile, both for children under 25 years (Kornrich and Furstenberg, 2013) and, more specifically, for children under 6 years (Kornrich, 2016).

Beyond monetary spending, parental time investments are also strongly shaped by socioeconomic status (Bianchi et al., 2004; Phillips, 2011). Higher-educated and higher-income parents devote more time to childcare (Guryan et al., 2008) and engage in more developmentally enriching and age-appropriate activities (Kalil et al., 2012b). Examining trends over 25 years up to 2012, Kalil et al. (2016) find declining income-based differences in some activities, such as owning children's books and visiting libraries, but widening gaps in others, including reading and storytelling, as well as practicing letters, words, or numbers with children. Income-based disparities also increased in children's recreational activities. Overall, these trends are largely driven by the growing distinctiveness of very high-income families, who increasingly differentiate themselves from middle- and lower-income households. Finally, Schneider et al. (2018) find no consistent evidence that class differences in parental time investments increase with higher state-level income inequality. While some model specifications suggest a negative relationship between inequality and education-based gaps in time investments, this pattern is not robust across periods or models. Schneider argues that if rising inequality changes high-status parents' preferences toward investing more time in their children. These effects may be offset by the outsourcing of childcare to experts, rather than by increased time constraints due to employment.

2.0.3 Migration background and parental investments

For the American context, a strand of the literature documents that mothers from Hispanic and African American backgrounds are less likely to read to their children than their non-Hispanic White counterparts (Raikes et al., 2006; Bradley et al., 2001; Britto and Brooks-Gunn, 2001; Yarosz and Barnett, 2001; Hastings and Schneider, 2021). Among one-year-olds, the likelihood of being read to daily is roughly half as high for English- and Spanish-speaking Hispanic children as for White children (Raikes et al., 2006). Moreover, while White parents are more likely than Black and Hispanic parents to report reading to their children frequently, Black parents are more likely than White parents to report teaching the alphabet and pointing out words to their children (Chen et al., 2012).

Parental spending patterns are also heterogeneous, even when focusing on education-related investments. Raikes et al. (2006), for instance, measure the ownership of at least five children's books among one-year-olds and find that 91 % of White and English-speaking Hispanic children and 78 % of African American children had this level of access. In contrast, only 59 % of Spanish-speaking Hispanic children had at least five books in their homes.

2.0.4 Family structure and parental investment

Recent literature by Le Forner (2023) evaluates parental time investments across family structures. Based on resource theory, children of single parents have fewer overall time and financial resources available. After separation, the total time both parents spend with a child decreases substantially, although the custodial parent compensates for part of this loss—meaning that the actively spent time with at least one parent does not decline after separation. However, the results depend strongly on the type of parent–child activities considered. For instance, Pepin et al. (2018) find no differences in the amount of time parents spend on childcare by marital status, while boys experience a larger decrease in parental time investments after separation than girls (Le Forner, 2023; Bibler, 2020). Research on differences in parental financial investments by family structure yields similarly nuanced findings. Kaushal et al. (2011) show that the share of expenditures devoted to children hardly varies by family type, whereas Bianchi et al. (2004) find that single mothers spend more on their children than married couples, while holding income and wealth constant. Most closely related to my study, Hastings and Schneider (2021) use data from the CEX (2003–2018) to analyze differences in parental investments in childcare, education, and enrichment activities by family structure. They find that married parents, on average, spend more than cohabiting or single parents. However, once household income is controlled for, this relationship reverses, with single parents investing the most both in absolute terms and as a share of income. Income differences thus fully account for the lower spending observed among single parents. These patterns hold across racial and educational groups.

2.0.5 Contribution

The main contribution of this thesis is to provide novel evidence on differences in parental investments in the German context. While the majority of the existing literature focuses on the United States, the external validity of these findings is limited when applied to Germany. Germany’s more comprehensive childcare system and its distinct family policy environment may fundamentally alter parental time allocation and investment behavior. Therefore, a detailed examination of parental investment patterns in Germany is both warranted and necessary.

A second contribution and notable feature of this thesis is the adoption of a child-level perspective, focusing on the cumulative parental time investments that each child receives from both parents. This perspective is crucial, as a child’s development and future opportunities depend on the total amount of parental investments it is exposed to, rather

than on the individual contributions of mothers or fathers considered in isolation. Previous studies in the U.S. context have emphasized this limitation, noting that analyses of total parental developmental childcare are constrained by the structure of the ATUS, which includes time-use data for only one adult respondent per household (LaBriola and Schneider, 2021). To overcome this limitation, several studies have attempted to construct synthetic couples through matching procedures to approximate joint parental time investments (Schneider et al., 2018; Gautham and Folbre, 2024). In contrast, the German ZVE dataset used in this thesis provides time-use information not only for both parents but also for the child (from age 10 onward). This unique feature allows for a precise and direct measurement of parental time investments at the child level, thereby offering a richer and more accurate depiction of family time allocation.

A further limitation of the existing literature is that the majority of studies examining the relationship between parental investments and human development rely on single-child models (also pointed out by Francesconi and Heckman (2016) and Berman et al. (2025)). Identifying which child actually receives parental investments has been largely infeasible in previous research due to limitations of the ATUS. Thereby, it is implicitly assumed that parental resources are allocated independently of sibling composition. This may bias estimates upward, as prior research indicates that firstborn children tend to receive more parental investments (Black et al., 2005). So, many analyses have been forced to restrict their samples to one-child households only. In contrast, this study is able to identify the time investments received by each child aged ten and above and thus includes all children within a household in the analysis. This is made possible by the unique structure of the ZVE data, which contain time-use information not only for both parents but also for children from age ten onward.

A further contribution of this thesis is the explicit focus on four disadvantaged groups: single parents, families at risk of poverty, non-academic households, and families with a migration background. This focus allows for a more comprehensive understanding of parental investments in Germany and ensures comparability across those groups within a unified analytical framework. From a policy perspective, making groups comparable is particularly relevant, as it helps identify where and for which groups family policy instruments can most effectively reduce inequalities in children's developmental environments.

Moreover, this thesis extends the analysis of parental investments to the adolescent stage, a period that has received relatively little attention in previous research. Most existing studies focus on early and middle childhood, when parental inputs are believed to have the strongest influence on later outcomes (Heckman, 2006). Addressing this gap provides new evidence on where inequalities and untapped potential may persist beyond early childhood. In addition, the thesis offers insights into the age profile of parental investments from birth

through age eighteen, making age-related heterogeneities in parental inputs visible and comparable.

Lastly, this thesis extends the emerging strand of literature that jointly examines financial and time investments in children (for example Schneider et al. (2018) and Gautham and Folbre (2024)). The most recent and comprehensive contribution in this field, Gautham and Folbre (2024), advances this perspective by quantifying the monetary value of unpaid parental care and documenting substitution patterns between purchased and unpaid childcare across income groups and household structures. However, due to data limitations, their analysis relies on matching procedures. Building on this line of research, my analysis overcomes this constraint by using data that include detailed time-use information for both parents, thereby enabling a more direct and comprehensive assessment of how socioeconomic differences in parenting translate into developmental inequalities.

Chapter 3

Parental investments and child development: a conceptual framework

3.0.1 Parental time investments

Although this thesis does not directly assess child outcomes, due to the absence of outcome variables in both the time-use and expenditure datasets, it draws on a well-established empirical literature that links specific parental activities to cognitive and socio-emotional development in children. Based on these findings, I categorize childcare activities and evaluate them according to their developmental value. It is important to note that the majority of existing research focuses on early childhood. Hence, the developmental effects of parental investments during adolescence and early adulthood remain comparatively underexplored.

In line with this literature, I identify four types of parental activities as particularly beneficial for child development: educational childcare, recreational childcare, reading to the child, and parent-child conversations. These activities are consistently associated with improved cognitive and behavioral outcomes. In addition to these high-value activities, the analysis also includes other types of parent-child interactions whose developmental impact is less well understood. These serve as comparative or baseline categories and help contextualize the relative importance of developmentally enriching care.

The developmental returns to specific types of investments are not uniform across age groups. Rather, they vary systematically with the child's stage of development. Both theoretical and empirical contributions suggest that early parental time and financial inputs generate higher marginal returns than later investments (Del Bono et al., 2016; Lareau, 2003; Heckman, 2006). For young children, particularly those under the age of six, reading and educational engagements are especially effective in promoting cognitive

skills (Kalil et al., 2012b; Price and Kalil, 2019a; Gialamas et al., 2020). As children age, parental involvement shifts towards more organizational and supervisory functions (Kalil et al., 2012b). For adolescents, who spend considerably less time with their parents, the quality and structure of independently spent time has become increasingly relevant for developmental outcomes (Del Boca et al., 2017). Reflecting this age-specific variation in the developmental relevance of parental inputs, each section also examines how parental investments differ across children's life stages. The full set of analyses is provided in the Appendix C.

Educational childcare

This thesis defines educational childcare as cognitively stimulating parent-child activities, including helping the child with homework, reading books or newspapers together, and providing verbal explanations during learning tasks. This conceptualization closely follows Hsin and Felfe (2014), who define educational time as consisting of studying, doing homework, reading or being read to, activities that directly promote human capital accumulation. The developmental relevance of educational childcare has been firmly established in the empirical literature. Among younger children, educational time significantly improves both cognitive and behavioral outcomes. While the behavioral effects dissipate as children age, the cognitive benefits remain strong and statistically significant throughout later childhood (Hsin and Felfe, 2014). Similarly, Del Bono et al. (2016) show that educational childcare generates larger returns in verbal and cognitive domains than other forms of parental engagement, such as recreational care. These results suggest that the marginal productivity of educational time is particularly high, especially in early and middle childhood. Evidence from Fiorini and Keane (2014) further underscores the exceptional value of educational childcare. Using a picture-vocabulary test to assess child development, they rank educational activities as the most effective among a comprehensive set of parent-child interactions. Their findings imply that reallocating time away from general childcare or passive media consumption toward educational engagement could substantially enhance children's cognitive trajectories. Beyond these comparative studies that document differential returns to specific activity types, longitudinal evidence points to persistent medium-term effects of early educational involvement. Li and Hamlin (2019) use large panel data and find that parental homework assistance in Grade one significantly predicts higher academic achievement in grade three. This suggests that cognitively oriented parental support at an early stage not only yields immediate developmental gains but also accumulates over time, reinforcing academic skill formation in subsequent schooling years.

Putting this together, educational childcare consistently emerges as the most developmentally productive category of parental time-use. It combines high cognitive returns with robust effects across age groups and has demonstrated superiority over alternative forms of

engagement in multiple empirical settings (Hsin and Felfe, 2014; Fiorini and Keane, 2014; Del Bono et al., 2016; Li and Hamlin, 2019).

Reading to the child

Among childcare activities, reading to a child is the most consistently documented in the existing literature as having substantial and explicitly studied positive effects on children's cognitive and verbal development. A large body of research demonstrates that shared reading improves cognitive skills and academic performance (Del Bono et al., 2016; Hsin and Felfe, 2014; Kalb and Van Ours, 2014; Raikes et al., 2006). Evidence is particularly strong for early childhood, when reading is highly beneficial for both cognitive outcomes and language development (Del Bono et al., 2016; Hoff, 2006; Raikes et al., 2006; Snow, 2006). Importantly, the benefits extend into the medium and long term: reading to children at ages four to five has a significant and lasting impact on reading abilities and broader cognitive skills, with effects persisting at least until ages ten or eleven (Kalb and Van Ours, 2014). These findings are robust across a wide range of sensitivity analyses.

Of particular note, Price and Price and Kalil (2019b) identify a causal effect of mother-child reading on children's academic achievement. They estimate that a one standard deviation increase in maternal reading time raises children's reading achievement scores by 0.8 standard deviations. This highlights the exceptional developmental importance of shared reading as an early parental investment.

Recreational childcare

I define recreational childcare as leisure-oriented activities that parents undertake with their children, often overlapping with hobbies. These include sports, cultural activities such as theater visits, creative tasks like painting or gardening, and shared games. Such activities provide structured opportunities for meaningful verbal interaction and cognitively demanding engagement, thereby contributing to child development (Hsin and Felfe, 2014). Empirical evidence shows that recreational childcare exerts positive effects on both cognitive and behavioral outcomes across all children, independent of parental education or socioeconomic background (Hsin and Felfe, 2014; Del Bono et al., 2016). Furthermore, Del Bono et al. (2016) demonstrate that the relevance of recreational childcare for child development increases as children grow older, with the activities contributing more strongly to developmental outcomes from around age five onward.

Conversations

I define conversations as verbal interactions between parents and children, which are generally associated with positive developmental outcomes. However, their relevance varies across age groups. Young children do not benefit from merely overhearing adult

conversations in which they remain passive; instead, they gain substantially from direct, child-centered dialogue (Hsin and Felfe, 2014). For children up to age ten, I therefore focus on conversations in which parents deliberately devote time to engaging with the child, for example, by explaining concepts or answering questions. Evidence indicates that the frequency of exposure to adult speech specifically directed at children fosters language growth as early as 18 months of age (Shneidman and Goldin-Meadow, 2012; Shneidman et al., 2013; Weisleder and Fernald, 2013). Classic research also demonstrates substantial differences in the amount of linguistic input children receive across socioeconomic groups, highlighting the unequal opportunities for early language development (Hart et al., 1997). For somewhat older children, storytelling by parents (particularly by mothers) has been identified as an important component of recreational childcare with developmental relevance (Del Bono et al., 2016).

For children above age ten, I adopt a broader definition of conversations, encompassing all instances of verbal engagement reported by the children themselves in the survey. Importantly, the developmental value of conversations is not only determined by their frequency, but also by their quality, linguistic complexity, and content. For instance, children benefit more from interactions with mothers who possess a larger vocabulary. This effect is partly mediated by the intensity and frequency of mother-child conversations (Zimmerman et al., 2009).

Complementary activities

I define media consumption as joint engagement of parents and children in listening to music or radio, watching television, and using streaming services to consume films or videos. Importantly, the analysis does not capture children's total media use, but only the time they spend consuming media together with their parents. The existing literature on this type of shared media consumption is limited and yields inconclusive findings, with some studies reporting positive effects while others find none (Fiorini and Keane, 2014; Hsin and Felfe, 2014; Zimmerman et al., 2009). Moreover, the media environments studied in earlier research differ substantially from today's digital landscape, which makes direct comparisons problematic. Finally, the data provide no information on the quality or content of the media consumed. For these reasons, it is not possible to classify joint media use as either developmentally beneficial or detrimental for child outcomes.

Supervisory childcare refers to periods when parents are with their children without engaging in direct interaction. This form of childcare is primarily passive in nature and consists of monitoring or supervising the child. It typically occurs simultaneously with other activities, such as doing household chores while keeping an eye on the child. Once a parent actively interacts with the child, for instance by playing together or explaining

something, the activity no longer falls under supervisory childcare.

Basic childcare, includes the child's direct and immediate care. This includes activities such as personal hygiene, feeding, dressing, and attending to the child when sick.

Shared meals represent the most frequent primary activity undertaken by parents with their children in the sample, accounting for more than 20 percent of total joint time. This activity is particularly relevant for adolescents, as it constitutes one of the main contexts in which parents spend time with them, a pattern that will be further illustrated in the subsequent analysis.

3.0.2 Parental financial investments

Beyond parental time, economic resources represent a central input in the production of child human capital (Kaushal et al., 2011). Since the seminal work of Heckman and co-authors, it has become well established that early investments are crucial for children's skill formation and long-term outcomes. In one of their most influential papers, Cunha and Heckman (2008) conceptualize the "technology of skill formation," aiming to understand how parental inputs, such as time, education, and financial resources, are transformed into cognitive and noncognitive skills. They show that a 10 percent increase in parental investment at ages six to seven raises the probability of college graduation by 64 percent and increases later earnings by about 25 percent.

Parental investment is commonly proxied by indicators such as the number of books a child owns, the presence of musical instruments at home, or participation in special lessons and extracurricular activities (Cunha and Heckman, 2008). Similarly, Yeung et al. (2002) argue that higher parental economic resources translate into improved child outcomes through various mediating channels, such as a more stimulating home learning environment. This evidence has given rise to a substantial body of research emphasizing the importance of early parental investments for both contemporaneous child outcomes and later-life achievements (see review by Currie and Almond, 2011).

In this thesis, I draw on this literature to define groups of parental financial investments. Furthermore, I conceptualize parental spending as the financial counterpart to parental time investments. The developmentally-relevant expenditure categories are mapped conceptually to the types of developmental activities identified in the preceding section.

Private tutoring represents the financial analogue to educational childcare. Both forms of investment are directed toward enhancing cognitive development and academic achievement. They mainly differ in their mode of provision: direct parental involvement versus outsourcing to professional tutors.

Extracurricular lessons, such as music, art, or sports classes, are treated as the monetary counterpart to recreational childcare. These expenditures aim to foster noncognitive skills, creativity, and social competence. However, they cannot be interpreted as strict substitutes for parental time. Within the category of recreational spending, there exists substantial heterogeneity in both price and intensity of developmental input: For example, an hour of private piano lessons represents a markedly different financial and educational investment than other less-structured activities.

After-school care is conceptualized as a partial time substitute for parental supervision, reflecting parents' outsourcing of routine childcare functions. Such spending does not necessarily embody a homogenous developmental motive but nonetheless represents an important dimension of household resource allocation that shapes children's daily environments.

In addition to the core categories, I also consider complementary financial investments, namely spending on toys, clothing and footwear, as well as books and school supplies. While these expenditures do not have a direct counterpart in the time-use framework and are therefore not the main focus of the analysis, they have been repeatedly discussed in previous research as part of parental investment in children (Schneider et al., 2018; Hastings and Schneider, 2021; Kornrich and Furstenberg, 2013). Including them provides a more comprehensive picture of the financial resources parents allocate to their children's development.

Chapter 4

Data and methodology

4.0.1 Time-use survey

This study draws on the 2022 wave of the German Time Use Survey (Destatis, 2024), which covers 9,285 households. The sample is restricted to families with at least one child under the age of 18. The survey records primary and secondary activities for all household members aged ten and above in ten-minute intervals. Activities are coded within a three-digit hierarchical system comprising 226 distinct categories. One of the first-level categories, "childcare within the household", includes nine specific childcare activities involving children under 18, such as accompanying a child to leisure activities or supervising a child at home. However, restricting the analysis to these explicit childcare codes would be too narrow for the purposes of this study. Adolescents, for instance, often report shared time under broader categories such as "talking to household members," even when interacting with their parents. Moreover, other shared activities, such as pet care, gardening, or attending cultural events, can also provide developmentally relevant interactions. The analytical sample therefore includes all time slots in which parents and children spend time together, not only those explicitly labeled as childcare.

To translate my conceptual approach into the analytical dataset, a detailed data construction procedure was implemented; a full account of the matching algorithms, coding concordances, and aggregation steps is presented in Appendix A. The final dataset records, for each child, the total minutes per day jointly spent with one or both parents, aggregated across all primary and relevant secondary activities. Several consistency checks and filtering procedures during the data preparation ensure that only those time slots are included in which children and their parents were jointly engaged in a specific, shared activity. Activities are grouped into four developmental and four complementary categories, following the framework outlined in Section 3. The resulting data provide a child-level

panel of average daily durations (in minutes) by activity type and parental involvement. So, I capture both the intensity and composition of parental time investments.

Several disadvantages of the German Time Use Survey need to be considered. A first drawback arises from the aggregation of parental reports: when both parents simultaneously engage in the same activity with a child, the corresponding time investment is counted twice, although the child only receives it once. This measurement issue may inflate estimated parental time investments in two-parent households relative to single-parent households. As this study adopts the child's perspective, the focus is placed on the amount of joint parental time a child actually receives rather than on parental inputs separately. A second limitation concerns children under the age of ten. Since the data do not allow identification of individual children in households with two or more siblings under ten, only these households are excluded. As a result, younger children are underrepresented in the analytical sample (see Appendix B3). A further disadvantage relates to the timing of data collection. Between January and March 2022, many kindergartens were still affected by closures due to the COVID-19 pandemic. In addition, remote-working arrangements remained widespread in early 2022, which may restrict the external validity of the findings. In fact, a considerable number of time slots indicate that parents reported working from home as their primary activity while simultaneously being with their children. However, these time slots are excluded from the final analytical sample due to the matching procedure applied in this study.

Table 4.1: Descriptive Statistics of parent-child activities

Variable	Mean	SD	Min	Max
Recreational childcare	116.5	150.4	0	1,443.3
Supervisory childcare	59.9	112.8	0	1,123.3
Eating together	66.2	62.9	0	486.7
Basic childcare	22.4	47.0	0	453.3
Conversations	40.3	75.3	0	970.0
Educational childcare	18.9	32.9	0	400.0
Media use	27.1	49.1	0	503.3
Reading to child	7.1	16.7	0	186.7

Note: Descriptive statistics of activity groups in the analytical sample (in average minutes per day). All values are weighted by household weights. N=3485. *Source:* German Time Use Survey (2022)

4.0.2 Income and expenditure survey

This paper uses data on parental expenditures from the German Income and Expenditure Survey 2018 (Destatis, 2021). The EVS is a quota-based, nationally representative

cross-sectional household survey, conducted every five years by the German Federal Statistical Office. The analytical sample is restricted to households with at least one child under the age of 18. The resulting dataset is organized at the child level and comprises 19,618 children from 12,096 households. Expenditure information is drawn from the *Haushaltsbuch* module of the EVS, where expenditures are reported at the household level. This paper focuses exclusively on child-related expenditures, described in chapter 3. To obtain child-level measures, household expenditures were normalized by the relevant number of children within the household, following standard practice (Kornrich and Furstenberg, 2013; Kornrich, 2016; Hastings and Schneider, 2021). Spending on books and school supplies, as well as on toys, was divided by the total number of children in the household. Spending on extracurricular lessons and on private tutoring was normalized by the number of children aged six to 18 years, while expenditures on clothing and footwear were only collected for children up to the age of 14 and therefore divided by the number of children under 14 years. Expenditures on after-school care were adjusted by the number of children aged six to twelve years¹. This procedure results in a child-level dataset with per-child expenditures in the respective categories. Throughout this thesis, expenditures are expressed as weekly spending per child in Euros. Table 4.2 presents the descriptive statistics of parental investment groups.

Table 4.2: Descriptive Statistics of child-related expenditures

	Mean	SD.	Min	Max	N
Spending on toys	4.28	6.9	0	212	19618
Spending on books and school supplies	3.47	4.89	0	639	19618
Spending on extracurricular lessons	5.91	9.69	0	150	12718
Spending on private tutoring	1.01	4.70	0	102	12718
Spending on children's clothing and footwear	10.22	8.76	0	134	14306
Spending on after-school care	3.87	8.59	0	119	7406

Note: Descriptive statistics of expenditure groups (parental financial investment groups) in the analytical sample (in Euros per week). All values are weighted by household weights.

Source: German Income and Expenditure Survey (2018)

While the EVS provides rich and nationally representative expenditure data, several limitations need to be considered. First, because spending is recorded at the household level, it is not possible to observe which child actually received a given expenditure, which

¹The variable after-school care is defined in the household book as spendings on child care in children's homes and after-school centers, and is in principle reported for children of all ages (Statistisches Bundesamt 2018). Evidence from single-child households, where expenditures can be unambiguously assigned, shows that such spending is essentially zero below age 6, peaks around age 8 at roughly €140 per child, and falls to about 2 Euro after age 12 (a decline of more than 98%). I therefore normalize household expenditures on after-school care by the number of children aged 6–12, as only this age group generates economically meaningful variation in spending.

may introduce allocation bias at the child level. Second, missing values are coded as zero, creating the risk of downward-biased estimates. Finally, as the most recent wave dates from 2018, the data may not capture current consumption patterns, and comparability with the 2022 ZVE data is therefore limited.

Defining socioeconomic and sociodemographic groups

To ensure comparability between the EVS expenditure data and the ZVE time-use data, the socioeconomic groups were defined consistently across both datasets. Single-parent households are defined as cases in which the parent resides with one or more children but without a cohabiting partner. Household income is equivalized using the OECD modified equivalence scale to account for differences in household size and composition. A household is classified as being at risk of poverty if its equivalized net income falls below 60 percent of the national median. Parental education is measured by the highest degree attained within the household. Households in which neither parent holds a university degree are classified as lower parental education, while households in which both parents hold a university degree or an equivalent higher professional qualification (e.g., Techniker, Meister) are classified as higher parental education. In the case of single-parent households, the classification is based solely on the educational attainment of the resident parent. Migration background is defined differently across the two datasets due to data availability. In the ZVE, a household is classified as having a migration background if at least one parent was born abroad. In the EVS, by contrast, no information on parental country of birth is available, and parental nationality is used as a proxy. This definitional difference leads to systematically lower shares of households with a migration background in the EVS compared to the ZVE (see Table 4.3).

Table 4.3: Descriptive statistics of socioeconomic and sociodemographic groups in the time-use and expenditure data

Household of the child	Time use survey				Income and expenditure survey			
	Mean	SD	N D=1	N total	Mean	SD.	N D=1	N total
Single parent	0.18	0.41	620	3485	0.15	0.35	2881	19618
Migration background	0.30	0.46	1045	3485	0.08	0.27	1597	19618
Lower parental education	0.52	0.50	1844	3485	0.44	0.49	8620	19618
Higher parental education	0.25	0.41	858	3485	0.29	0.45	5682	19618
Household at risk of poverty	0.13	0.33	450	3485	0.14	0.35	2724	19618
High-income household	0.24	0.43	829	3485	0.25	0.43	4904	19618

Note: Descriptive statistics for the four socioeconomic and sociodemographic groups in the analytical sample, based on child-level data and weighted using household weights. Group indicators equal one if the child belongs to the respective group. The high parental education indicator equals one if both parents hold a tertiary degree, and the high-income indicator equals one if the child lives in a household in the top income quartile. *Source:* German Time Use Survey (2022), German Income and Expenditure Survey (2018)

4.0.3 Methodology

The unit of analysis in this thesis is the child. Time-use information is expressed as the average number of daily minutes that a child spends in joint activities with their parents, aggregated across all parental participants. Expenditure measures are normalized to weekly per-child amounts in euros. These transformations harmonize the two datasets and ensure that parental investments in time and money are comparable across children from different household structures and age groups. Accordingly, the dependent variables capture parental time and financial investments at the child level.

All dependent variables are $\log(x + 1)$ transformed to correct for the positive skewness observed in both time-use and expenditure measures.² This transformation also facilitates a semi-elasticity interpretation of the estimated coefficients, allowing percentage-based comparisons across outcomes with differing scales.

The baseline econometric specification is an ordinary least squares (OLS) regression, where the log-transformed measures of parental investment serve as the dependent variables. Separate regressions are estimated for each category of financial investment and time investment defined in Section 4. All regressions are weighted using household sampling weights. The key explanatory variables are dummy indicators for social and socioeconomic background, namely whether the child lives in a household with a migration background, in a single-parent household, in a household at risk of poverty, or in a household without tertiary parental education.

All specifications include controls for the child's gender, the number of children in the household, and residence in East versus West Germany³. Additionally, the expenditure regressions control for the federal state and the survey quarter, while the time-use regressions control for the survey month and whether the child attends a daycare institution (Kita). To flexibly capture systematic age-related differences in parental inputs, all models include child-age fixed effects. Huber–White heteroskedasticity-robust standard errors are reported throughout.

The estimated coefficients are interpreted as semi-elasticities that describe child-level differences in received parental investments. In the expenditure regressions, they represent the approximate percentage difference in per-child financial resources that a child receives,

²In the German Time Use Survey, skewness values range from 1.64 for eating together to 3.80 for conversations, while in the expenditure data they range from 3.25 for extracurricular lessons to as high as 43.1 for books and school supplies.

³Gender is controlled for since boys tend to receive less parental investment, especially after parental separation (Bibler, 2020). The number of children captures resource dilution and sibling competition in parental investments (Berman et al., 2025). Regional controls are crucial in the German context, as (i) public childcare provision (Kitas) is more extensive in East Germany, and (ii) education policy is determined at the federal state level.

associated with a given group indicator relative to the reference group, conditional on covariates. Analogously, in the time-use regressions, the coefficients capture the percentage difference in the average daily minutes of joint parental time that a child receives from all parents combined, again relative to the corresponding baseline group. In addition to the full regression results for developmentally enriching investments, the results section presents coefficient plots for the complementary investment dimensions to visualize corresponding group differences.

To illustrate how parental investments evolve over the child's life course, I complement the regression results with marginal prediction plots by child age. These plots display the predicted values of time and financial investments for different socioeconomic groups across age bins, based on weighted linear regression models that include an interaction between child age category and the respective group indicator. All models incorporate the full set of baseline controls, and predictions are evaluated at the sample means of these covariates.

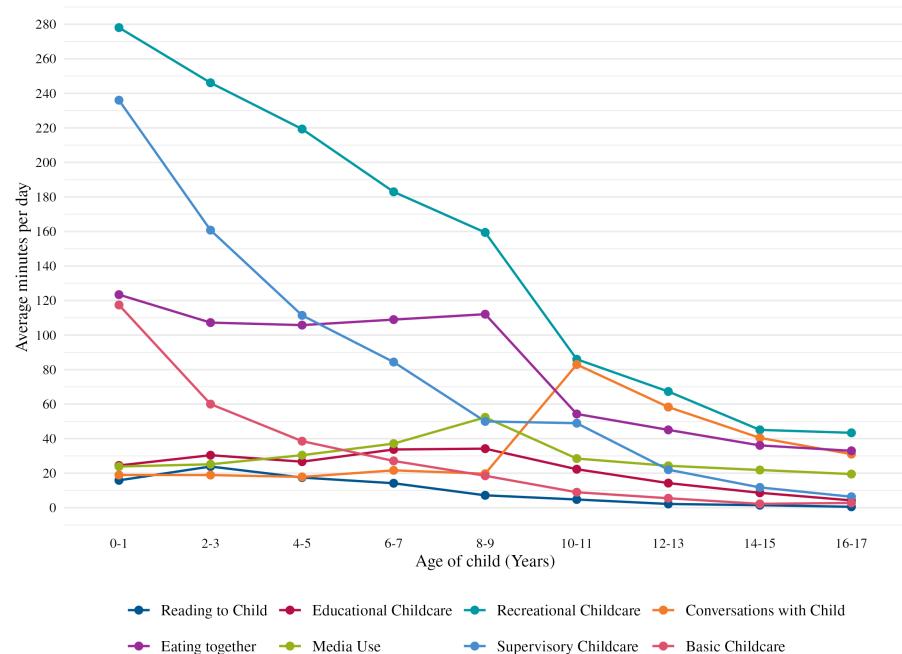
This study does not employ a causal identification design. Instead, the empirical strategy is descriptive, aiming to document systematic differences in parental time and financial investments received by children across socioeconomic groups. The inclusion of controls helps absorb systematic variation in parental inputs arising from demographic structure, regional institutions, and seasonal patterns in the survey fieldwork. The estimated coefficients should therefore be interpreted as conditional correlations, not as causal effects, and as documenting robust patterns of inequality in the parental time and financial resources that children receive after accounting for observable characteristics.

Chapter 5

Results

5.1 Development of parental time investments over a child's life

Figure 5.1: Development of shared parent–child activities across child age



Note: The figure shows the average daily minutes that children receive in total parental time investments across activities, by child age (two-year intervals). Parental inputs are aggregated across mothers and fathers. Reported minutes cannot be summed across activities as activities may overlap within the same time slots. Reading to child is listed separately but also included in educational childcare. *Source:* German Time Use Survey (2022).

Figure 5.1 shows the average daily minutes that parents jointly spend with their children across different activities. The figure aggregates mothers and fathers, while separate results for mothers and fathers are provided in Appendix Figures C1 and C2, respectively. The

evidence reveals clear age gradients and systematic reallocation of time across activity types.

Recreational childcare dominates children's early years. As children grow older, time devoted to recreational activities declines for both parents, though the reduction is noticeably smaller for fathers. At ages eight to nine, children still receive 96 minutes of recreational childcare per day from fathers, only 26 % less than in infancy (Figure C2). Over the same period, maternal inputs have declined more sharply (Figure C1). From this age ten onward, recreational investments by mothers and fathers converge, and by ages 16–17, paternal inputs even slightly exceed maternal ones (33 versus 29 minutes).

Supervisory and basic childcare both exhibit steep monotonic declines, consistent with lower needs for direct oversight and bodily assistance as children age. Supervisory childcare, defined as parental presence without active engagement, falls from over 230 minutes in infancy to fewer than 10 minutes by ages 16–17. Basic childcare follows a similar pattern but is disproportionately borne by mothers, with fathers contributing less than half the maternal amount at all ages.

Eating together is remarkably stable across childhood and adolescence, persisting even at age 17. From age 10 onward, shared meals emerge as one of the most prominent forms of childcare relative to other activities. Yet, the qualitative content of meals is heterogeneous, ranging from passive (e.g., eating in front of the TV) to cognitively stimulating (e.g., family discussions). Shared meals are also the activity with the highest overlap between mothers' and fathers' times: from age 6 onward, reported minutes are virtually identical (± 1 minute), implying that in two-parent households children may simultaneously receive inputs from both parents.

Conversations increase in relative importance from age 10 onward. This shift partly reflects broader diary classifications for older children (household conversations vs. explicit conversations with a child; see Chapter 4). The developmental value of such interactions likely depends less on frequency than on content and linguistic complexity, suggesting heterogeneity by parental education.

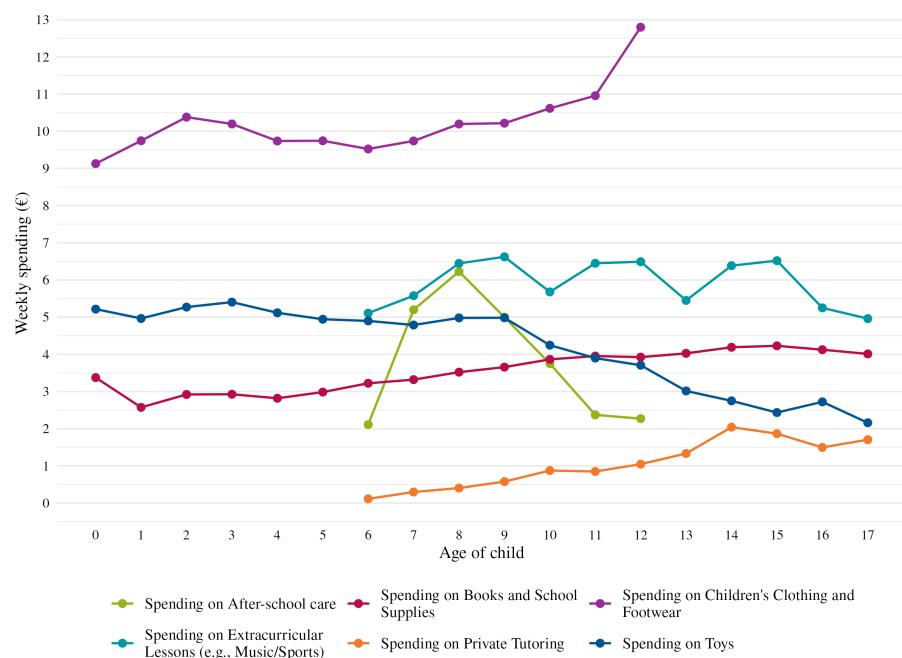
Educational childcare is relatively stable throughout early and middle childhood, averaging about 29 minutes per day and peaking at 34 minutes in the eight-to-nine age group, largely due to homework assistance. After age ten, it declines sharply, consistent with increasing child independence in schooling.

Reading to the child is heavily concentrated in the preschool years, peaking at 24 minutes for ages two to three, before disappearing almost entirely once children reach primary school age. Note that this activity is reported separately but also forms part of educational childcare.

Shared media consumption remains relatively stable across childhood. Because most other activities decline, its relative weight increases markedly in adolescence. For 16–17-year olds, parents spend about half as much time in shared media use as in recreational childcare. Importantly, these figures capture only joint consumption, not children's overall media use. Finally, note that the reported minutes cannot be summed to obtain total parent–child time. Many additional joint activities fall outside the childcare-related categories analyzed here and are therefore excluded by construction.

5.2 Development of parental financial investments over a child's life

Figure 5.2: Development of parental spendings on children across child age



Note: The figure plots average weekly parental spending across categories, by child age. Each data point represents mean financial investments reported at the child level. *Source:* German Income and Expenditure Survey (2018).

Figure 5.2 documents the development of parental spending across child age. Parental spending patterns vary systematically with child age and reveal a reallocation of resources from consumption to education-related investments. Spending on children's clothing remains the largest category across all ages. Expenditures on after-school care are concentrated in the early school years, when children cannot remain at home alone after classes. Spending on extracurricular lessons, such as music or sports, remains constantly

high at an average of 6.57 Euro per week across child age. This represents the second-highest spending category and can be interpreted as a sustained form of childcare investment. Private tutoring expenditures increase from 0.12 Euro at age six to 2.05 Euro at age 17. Moreover, a discrete jump in private tutoring spending of around 32 % occurs between ages 13 and 14, with spending rising from 1.47 Euro to 1.93 Euro per week. This jump likely reflects the increasing importance of academic performance as schoolwork becomes more demanding and as parents face limits in their ability to provide homework assistance. Spending on books and school supplies follows a parallel positive trend, similar to tutoring, but exceeds tutoring expenditures at every age. In contrast, toy expenditures decline steadily from 5.46 Euro after birth to 2.45 Euro at age 17. From age eleven onward, parents spend more on school supplies than on toys, underscoring a shift from consumption toward education-related spending. Overall, educational expenditures (in particular school supplies and private tutoring) rise along the child life cycle and gain importance in later stages of childhood.

Expenditures on formal childcare (Kita) are not included, as federal reforms under the *Gute-Kita-Gesetz* substantially altered parental contributions in recent years (BMBFSJ, 2020), rendering expenditure data from 2018 less relevant. Similarly, spending on hygiene products during early childhood, which is likely considerable, and prenatal fixed costs are not considered due to data limitations.

5.3 Parental investments by families with lower parental education

5.3.1 Time investments

Table 5.1 documents systematic differences in parental time allocations by parental education. Children from households in which neither parent holds a tertiary degree nor a higher professional qualification (as defined in Chapter 4) receive on average 16 % less educational childcare time ($p < 0.01$).

They also experience a double disadvantage in conversations. Not only are they exposed to 15 % ($p < 0.01$) fewer minutes of parental dialogue, but they also face a qualitative deficit, as conversations with less-educated parents tend to be less linguistically rich and developmentally stimulating (Hart et al., 1997)¹.

¹Hart et al. (1997) conducted a study of families, observing their language environments over several years. They found substantial differences by socioeconomic status: children in professional families heard on average 2,153 words per hour, compared to 1,251 in working-class families and 616 in welfare-recipient

5.3. Parental investments by families with lower parental education

Furthermore, children in these families are read to 25 % less often ($p < 0.01$). As reading is a key early investment, this deficit translates into substantial developmental disadvantages from the very beginning. The gap is driven by the early childhood years: Among two-to three-year-olds, highly educated parents read on average 17 minutes per day, while less-educated parents read only five minutes (see Figure C4). In line with Kalil et al. (2012b), these findings highlight that highly educated parents adjust their time inputs along the developmental gradient more effectively than their less educated counterparts. They concentrate on reading and educational childcare in the early years, when returns are highest (Kalil et al., 2016). Consistent with this, age-specific margins plots (see Appendix C4) reveal that disparities in nearly all developmental activities, except recreational childcare, are primarily concentrated in early childhood (below age ten), echoing the results of Hurst and Jacob (2021) and Sacks et al. (2010).

Interestingly, children of less-educated parents receive 14 % more recreational childcare. The regression coefficients remain similar when restricting the analysis to maternal time inputs. Mothers (typically the primary caregiver) invest 16 % less in conversations, 10% less in educational childcare, and 18% more in recreational childcare. These effects are robust to the inclusion of maternal employment controls (see Appendix Tables C1 and C2).

Turning to complementary activities, shown in a coefficient plot in Figure 5.3, the deficits of children with less-educated parents do not extend to developmentally neutral investments. Instead, these children spend 21 % more time in joint media consumption with their parents. This substitution away from developmentally enriching toward neutral activities suggests that the disadvantages faced by children of less-educated parents stem not only from lower total time investments but also from lower-quality allocations. This implies that family policy measures that enable parents to spend more time with their children do not necessarily translate into developmental enrichment for children from lower-educated families, particularly when compared to those from higher-educated backgrounds. A more effective approach would therefore target the content of parental time-use, for instance, by influencing priorities or raising awareness of the importance of developmental activities.

families. By age four, this amounted to an estimated cumulative gap of approximately 32 million words between children from professional and welfare-recipient households.

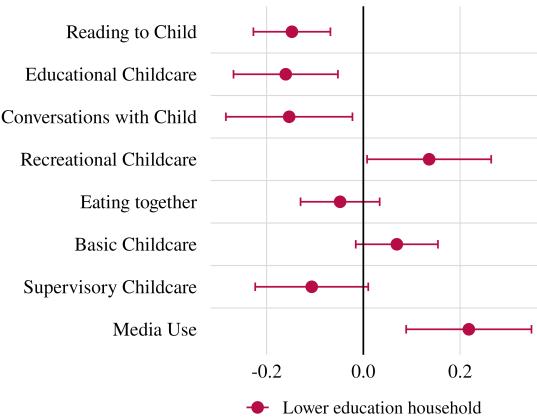
5.3. Parental investments by families with lower parental education

Table 5.1: Lower-educated parents: OLS estimates of differences in time investments (log-transformed minutes)

	Reading to child	Educational Conversations childcare	Educational childcare	Recreational childcare
Lower parental education	-0.25*** (0.09)	-0.15** (0.07)	-0.16*** (0.06)	0.14* (0.07)
Baseline controls & Child age FE	Yes	Yes	Yes	Yes
Child age group	0–6	0–18	0–18	0–18
Mean of activity (min/day), lower educated	5.25	41.50	17.64	114.37
Mean of activity (min/day), not lower educated	8.94	40.57	20.93	123.59
R ²	0.12	0.06	0.21	0.32
N	1,511	3,484	3,484	3,484

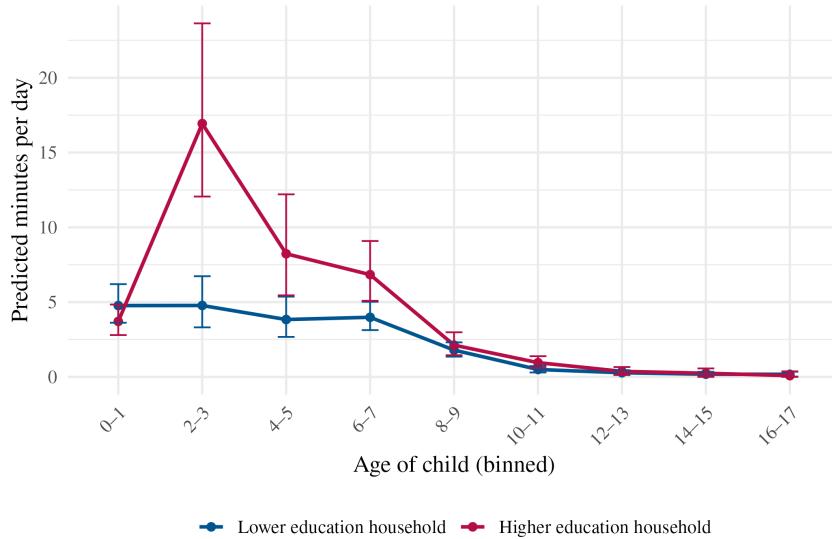
Note: OLS estimates of differences in parental time investments by lower parental education (indicator = 1 if neither parent holds a tertiary degree). The dependent variable is the log of daily minutes spent on each childcare activity, $\ln(\text{minutes} + 1)$, measured at the child level. All models include child age fixed effects and baseline controls for child gender, number of children, East/West residence, survey month, and daycare attendance. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Source: German Time-Use Survey (2022).

Figure 5.3: Lower-educated parents: estimated differences across developmentally enriching and complementary time investments (Log-transformed Euros)



Note: Coefficient estimates of differences in parental time investments by lower parental education (neither parent holds a tertiary degree). Each point shows a weighted OLS estimate from a separate regression where the dependent variable is $\ln(\text{daily minutes} + 1)$ that children received from both parents in the respective activity. “Reading to child” refers to ages 0–6; others to ages 0–18. Controls include child age fixed effects and baseline covariates. 95 % confidence intervals shown. Source: German Time-Use Survey (2022).

Figure 5.4: Lower-educated parents: Marginal effects by child age for reading to the child



Note: Margin plot showing predicted minutes per day spent on reading to a child by parental education across child age bins. Predictions are based on weighted linear regression models including an interaction between parental education and child age category. Baseline controls are included. Predicted values are evaluated at the sample means of all control variables. Vertical bars indicate 95% confidence intervals based on robust standard errors. *Source:* German Time-Use Survey (2022).

5.3.2 Financial investments

Table 5.2 reports OLS estimates of the association between the lower education indicator and three categories of parental financial investment. Specifications (A) exclude, while specifications (B) include net equivalized household income as a control. The results show that children whose parents have no tertiary degree receive on average 5 % lower expenditures on private tutoring. This difference, however, becomes statistically insignificant once household income is controlled for (Model B), indicating that the raw gap is primarily attributable to income differentials. The association is mainly driven by adolescents aged 16–17 (see Figure 5.6), where families with at least one tertiary-educated parent spend more on tutoring services. At the same time, the amount of parental time devoted to educational childcare (of which homework assistance is a key component) remains close to zero across all education groups (see Appendix Figure C4). Hence, parents with lower education levels neither compensate for lower financial investments with higher time inputs, nor vice versa. Furthermore, Figure 5.5 shows that conditional on income, children of low-educated parents receive 5 % more spending on toys ($p < 0.01$) but 22 % less on books and school supplies ($p < 0.01$) than average.

The largest disparity in parental financial investment emerges in extracurricular lessons. Children of less-educated parents receive 47 % lower expenditures on such activities

($p < 0.01$). By contrast, children of more advantaged parents (both with a university degree) exceed the population average by 28 % (see Appendix C13). Importantly, these differences are income-adjusted. As Figure 5.6 shows, the gap remains stable across the child's life course: Lower-educated parents invest on average 3.4 Euro per week on extracurricular lessons, compared to 8.2 Euro among high-educated parents (see Table 5.2). At the same time, as seen before, children from lower-educated families receive about 14 % more recreational childcare time, suggesting that lower-educated parents compensate fewer spending with higher time investments in recreation.

Taken together time and money, these results indicate that children of less-educated parents face systematic disadvantages in both financial and temporal dimensions of developmental investments. They receive fewer resources for books and extracurricular lessons, offset by higher spending on toys and greater time in recreational care. Crucially, these reallocations do not translate into compensating developmental inputs: reduced spending on educational goods and services is not balanced by higher investments in reading or educational childcare. Instead, less-educated parents appear to allocate both time and money toward less cognitively oriented activities. Previous research suggests that highly educated parents regard time with children as a distinct good that cannot be substituted by market-based alternatives (Guryan et al., 2008). Accordingly, they allocate their scarce time deliberately to developmentally enriching activities, whereas less-educated parents channel their inputs more toward leisure and consumption-oriented forms. Since parental time effectively functions as a "luxury good" that is disproportionately demanded by the highly educated, disparities in both time and financial investments widen across education groups.

Using the same dataset, Jessen et al. (2022) show that lower-educated mothers reduce their active parenting time to a similar extent as highly educated parents when children attend centre-based care. Combined with my finding that lower-educated parents spend less time at home in developmentally enriching activities during the preschool years, this suggests that their children may benefit particularly strongly from access to early education. Yet, in Germany, 25 % of families without an academic background do not obtain a childcare place despite expressing demand (Huebener et al., 2023). Taken together, these results underscore the urgency of addressing this gap to compensate for inequalities in parental time and financial investments and to reduce social disparities among children from less-educated families.

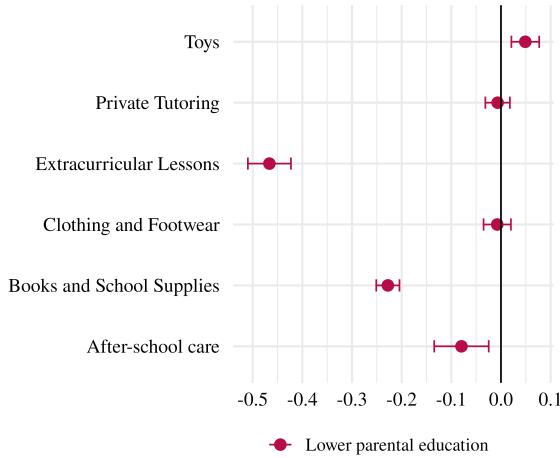
5.3. Parental investments by families with lower parental education

Table 5.2: Lower-educated parents: OLS estimates of differences in financial investments (log-transformed Euros)

	Private Tutoring		Extracurricular Lessons		After-school Care	
	(A)	(B)	(A)	(B)	(A)	(B)
Lower parental education	-0.05*** (0.01)	-0.01 (0.01)	-0.68*** (0.02)	-0.47*** (0.03)	-0.23*** (0.03)	-0.08** (0.03)
Equ. net household income			0.13*** (0.02)		0.58*** (0.03)	0.39*** (0.04)
Baseline controls & Child age FE	Yes	Yes	Yes	Yes	Yes	Yes
Mean spending (€/week), lower educated		0.90		3.41		9.57
Mean spending (€/week), not lower educated		1.11		8.18		15.73
R ²	0.03	0.04	0.09	0.14	0.11	0.13
N	12718	12714	12718	12714	7406	7404

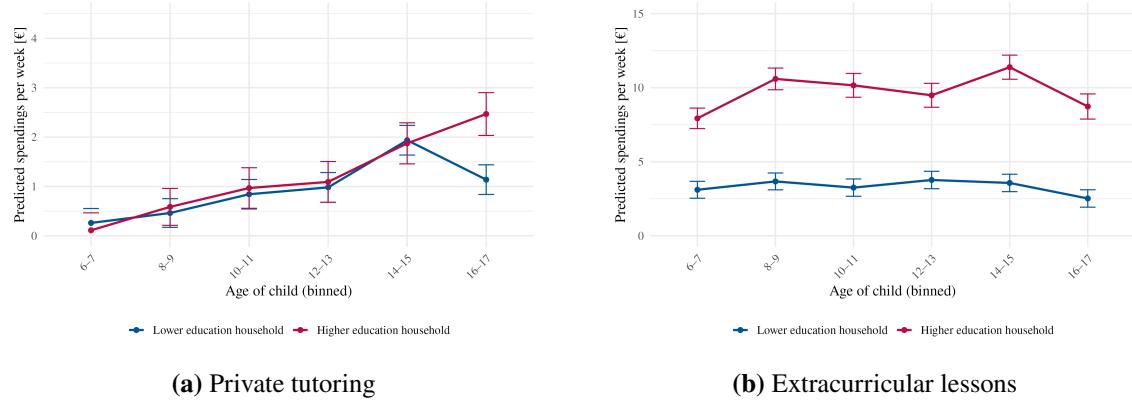
Note: OLS estimates of differences in parental financial investments by lower parental education (indicator = 1 if neither parent holds a tertiary degree). The dependent variable is the log of weekly spending, $\ln(\text{€} + 1)$, measured at the child level. Model (B) additionally controls for equivalized net household income (OECD scale). All regressions use household weights, include child age fixed effects and baseline controls for child gender, number of children, East/West residence, federal state, and survey quarter. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Source: German Income and Expenditure Survey (2018).

Figure 5.5: Lower-educated parents: estimated differences across developmentally enriching and complementary financial investments (log-transformed Euros)



Note: Coefficient estimates of differences in parental financial investments by lower parental education (neither parent holds a tertiary degree). Each point shows a weighted OLS estimate from a separate regression where the dependent variable is $\ln(\text{weekly spending (€)} + 1)$, measured on child level. Controls include child age fixed effects, baseline covariates and net household equivalence income. 95% confidence intervals shown. Source: German Income and Expenditure Survey (2018)

Figure 5.6: Lower-educated parents: marginal effects by child age for investment on private tutoring and extracurricular lessons



Note: Margin plot showing predicted weekly expenditures (€) on extracurricular lessons and private tutoring by parental education across child age bins. Predictions come from weighted linear regression models with an interaction between parental education and the child's age category. All models include baseline controls; predictions are evaluated at the sample means of these controls. Vertical bars denote 95% confidence intervals.
Source: German Income and Expenditure Survey (2018)

5.4 Parental investments by families at risk of poverty

5.4.1 Time investments

Children from households at risk of poverty receive significantly less parental time across almost all activity categories. Specifically, they spend on average 21 % less time in conversations with their parents ($p < 0.1$), 19 % less time in educational childcare ($p < 0.05$), and 32 % less time in recreational activities ($p < 0.01$), compared to children from non-poor households. No significant difference is observed regarding time.

Since poverty is defined through household income, and income is closely linked to employment, it is essential to consider parental labor supply. In the data, poverty is strongly associated with lower employment: in 36 % of poor households, neither parent is employed, compared to 3 % in non-poor households. Average parental full-time equivalents (FTE) considering two parents are 0.6 among poor households and 1.3 among non-poor ones.

This suggests that low-income households tend to have a greater time potential, at least in terms of lower formal labor market involvement. The key question, then, is why this additional time is not reflected in higher levels of parental time investment in their children.

To isolate the role of employment, the regressions are re-estimated including the parental FTE as a control variable (see Table C3 in the Appendix). Results show that even after controlling for employment, significant differences remain: children in poor households

continue to receive 19 % less educational childcare ($p < 0.01$), and differences in reading time become statistically significant as well.

In contrast, the gaps in recreational time and conversational time shrink substantially once employment is accounted for. This suggests that disparities in day-to-day activities are largely mediated by labor supply differences, whereas persistent gaps in educational investments point to additional poverty-related constraints or preferences.

Interestingly, a higher parental FTE is positively associated with time spent in recreational activities and conversations with children. In the data, employed parents do not spend less, but in fact, slightly more, time engaging in these activities compared to non-employed parents. This pattern may indicate that employed parents allocate their limited time more efficiently, concentrating on high-value interactions with their children. These findings are consistent with prior research suggesting that increases in maternal employment do not necessarily reduce developmentally beneficial parenting activities (Bastian and Lochner, 2022; Del Bono et al., 2016; Hsin and Felfe, 2014; Jessen et al., 2022).

When interpreting these results, it is important to note that the overall time spent on developmentally beneficial activities is not particularly high. For example, time spent on educational childcare averages less than 30 minutes per day for children above age ten (see Figure 5.1). This suggests that even full-time employment leaves sufficient room for such activities. Accordingly, absolute time availability may be less important than how time is prioritized within the daily schedule.

A complementary analysis of other time-use categories in Figure 5.7 shows that children in households at risk of poverty receive less parental time across nearly all activities, with one exception: basic childcare, where there is a (non-significant) tendency toward higher parental involvement. One possible explanation lies in the outsourcing of unpaid labor. As Schneider and Hastings (2017) show, women with higher socioeconomic status perform significantly less housework than their lower-status counterparts, an effect that is amplified in more unequal contexts. This is likely due to greater access to paid help (e.g., cleaners, babysitters), an option generally unavailable to low-income households.

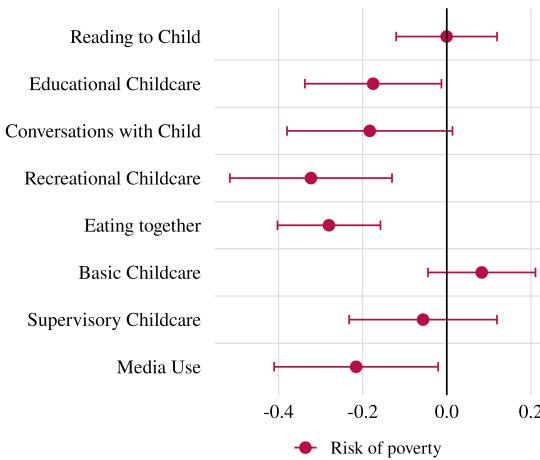
5.4. Parental investments by families at risk of poverty

Table 5.3: Families at risk of poverty: OLS estimates of differences in time investments (log-transformed minutes)

	Reading to child	Educational Conversations childcare	Educational childcare	Recreational childcare
Risk of poverty	0.04 (0.14)	-0.21* (0.11)	-0.19** (0.09)	-0.32*** (0.11)
Baseline controls & Child age FE	Yes	Yes	Yes	Yes
Child age group	0–10	0–18	0–18	0–18
Mean of activity (min/day), risk of poverty	6.19	36.23	17.36	90.83
Mean of activity (min/day), no risk of poverty	7.11	41.78	19.46	122.85
R ²	0.12	0.06	0.21	0.32
N	1,511	3,484	3,484	3,484

Note: OLS estimates of differences in parental time investments by risk of poverty. The group indicator equals one if the net household equivalence income is below 60% of the median. The dependent variable is the log of daily minutes spent on the respective childcare activity, defined as $\ln(\text{minutes} + 1)$, measured at the child level. “Reading to child” is restricted to children aged 0–6, as this activity is only developmentally relevant in early childhood; all other activities cover children and adolescents aged 0–18. All regressions include child age fixed effects. Baseline controls are the child’s gender, the number of children in the household, residence in East versus West Germany, survey month, and whether the child attends daycare (Kita). Robust standard errors are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. *Source:* German Time-Use Survey (2022).

Figure 5.7: Families at risk of poverty: estimated differences across developmentally enriching and complementary time investments



Note: Coefficient estimates of differences in parental time investments by risk of poverty. Each point shows a weighted OLS estimate from a separate regression where the dependent variable is $\ln(\text{daily minutes} + 1)$ that children received from both parents in the respective activity. “Reading to child” refers to ages 0–6; others to ages 0–18. Controls include child age fixed effects and baseline covariates. 95% confidence intervals shown. *Source:* German Time-Use Survey (2022)

5.4.2 Financial investments

Being at risk of poverty (defined as having a net equivalence income below 60 % of the median) naturally entails limited financial resources available for investments in children. Consistent with this, Table 5.4 shows that children from families at risk of poverty receive significantly lower financial investments across all three spending categories. The largest gap emerges in extracurricular lessons, where expenditures are 63 % lower relative to non-poor families. Importantly, as shown in the previous section, this shortfall is not offset by greater time inputs: children from poor families also receive 32 % less recreational childcare time. Hence, in the domain of leisure and recreational activities, children in poverty are disadvantaged both financially and in terms of parental time.

A similar pattern emerges in the educational domain. Children from poor households face disadvantages in both the time and financial dimensions of parental investment. Children from poor households receive 13 % ($p < 0.01$) less in private tutoring expenditures and 19 % ($p < 0.05$) less in educational childcare time. Looking at the absolute values, the mean of parental investment in private tutoring is 1.11 Euro per week for non-poor families and only 35 cents for poor families. The lower access to privately purchased educational support among children from low-income families is hardly surprising and mirrors evidence from the U.S. context (Buchmann et al., 2010; Hastings and Schneider, 2021). Although institutional settings and the cost structures of education differ markedly between Germany and the United States, the growing reliance on family-financed, extracurricular learning reflects a broader trend towards the privatization of educational opportunities (Park et al., 2016). This process effectively extends the boundaries of formal schooling into the market sphere, amplifying social stratification as access to these complementary learning resources increasingly depends on household income.

Moreover, staying with private tutoring, the gap between children in families at risk of poverty and those from high-income families widens as children grow older (see Figure 5.9) as the absolute amount of spending on tutoring gets bigger (see Figure 5.2). It is noteworthy, however, that the poverty coefficient for private tutoring is the second-smallest among all categories of childcare investments and spending (see Figure 5.8). Given the severe financial constraints faced by poor families, this finding suggests that private tutoring is the last category in which parents reduce expenditures, indicating a prioritization of this form of investment despite limited means.

My findings on income-related inequalities in parental investments are consistent with prior evidence documenting similar patterns across various contexts (Kaushal et al., 2011; Kornrich, 2016; Schneider et al., 2018; Hastings and Schneider, 2021). The literature offers several complementary explanations for why income inequality may translate into

disparities in parental investments, operating through both material and behavioral channels. First, as Evans et al. (2004) argues, unequal income distributions have a mechanical consequence for investment disparities: Higher income dispersion naturally widens the gap in the material capacity of parents to invest in their children. In line with this view, Kornrich (2016) decomposes the rise in child-related spending among top-decile families between 1980 and 2010 and shows that roughly one-third of this increase can be attributed directly to higher incomes within the top decile.

A second, more behavioral mechanism operates through parental aspirations and status concerns. Rising income inequality may heighten the perceived risks of downward mobility, particularly among affluent parents who fear being unable to transmit their socioeconomic status to their children (Hacker and Pierson, 2010; Lin, 2015). Lareau (2002) provides consistent evidence, documenting that higher-SES parents increasingly embrace intensive parenting practices aimed at securing access to selective colleges and future labor market success for their children. Lareau (2002) refers to these practices as concerted cultivation, reflecting a shift in parental preferences toward the active development of children's skills in an increasingly competitive environment.

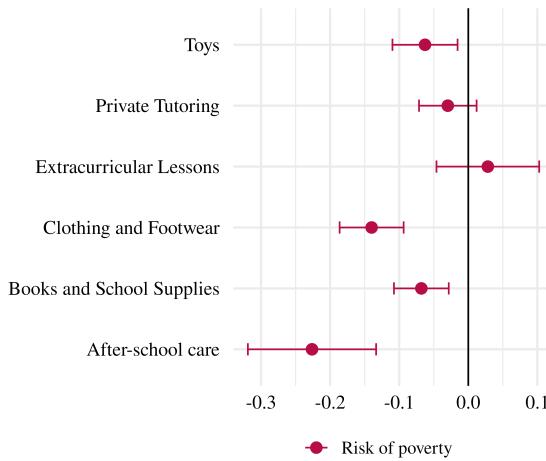
Table 5.4: Families at risk of poverty: estimated differences across developmentally enriching and complementary financial investments

	Private Tutoring	Extracurricular Lessons	After-school Care
Risk of poverty	-0.13*** (0.02)	-0.63*** (0.04)	-0.49*** (0.04)
Baseline controls & Child age FE	Yes	Yes	Yes
Yes	Yes	Yes	
Mean spending (€/week), risk of poverty	0.35	2.26	3.62
Mean spending (€/week), no risk of poverty	1.11	6.49	14.64
R ²	0.036	0.050	0.122
N	12718	12718	7406

Note: OLS estimates of differences in parental financial investments by risk of poverty (net equivalent household income below 60% of median). The dependent variable is the log of weekly financial investments in the respective category, defined as $\ln(\text{spending (€)} + 1)$, measured at the child level. Model (B) additionally includes equivalized net household income (OECD scale) as an explanatory variable. All regressions are weighted using household sampling weights and include child age fixed effects. Baseline controls are the child's gender, the number of children in the household, residence in East versus West Germany, federal state, and the survey quarter. Robust standard errors are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Source: German Income and Expenditure Survey (2018).

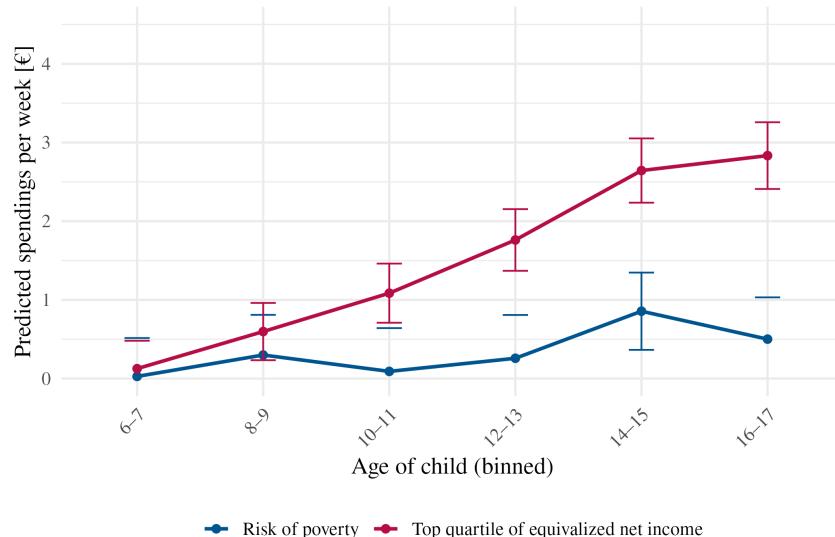
5.4. Parental investments by families at risk of poverty

Figure 5.8: Families at risk of poverty: estimated differences across developmentally enriching and complementary financial investments (log-transformed Euros)



Note: Coefficient estimates of differences in parental financial investments by risk of poverty. Each point shows a weighted OLS estimate from a separate regression where the dependent variable is $\ln(\text{weekly spending (€)}) + 1$, measured on child level. Controls include child age fixed effects, baseline covariates and net household equivalence income. 95% confidence intervals shown. *Source:* German Income and Expenditure Survey (2018)

Figure 5.9: Income level: marginal effects by child age for investment in private tutoring



Note: Margin plot showing predicted weekly expenditures (€) on private tutoring by income across child age bins. Predictions come from weighted linear regression models with an interaction between income variable and the child's age category. All models include baseline controls; predictions are evaluated at the sample means of these controls. Vertical bars denote 95% confidence intervals. *Source:* German Income and Expenditure Survey (2018)

5.5 Parental investments by migrant families

5.5.1 Time investments

Table 5.5 shows that children with at least one parent of migration background receive approximately 10 % less parental time in conversational and educational childcare compared to children from non-migrant families ($p < 0.1$). When additionally controlling for parental employment (see Appendix Table C6), the results remain robust: The estimated effects persist at roughly -10 % for both conversational and educational childcare, and the coefficients retain significance above the 90% confidence level. In contrast, the time children with a family with a migration background receive in recreational childcare does not differ significantly from that of children without a migration background. Interestingly, across all types of childcare activities, the coefficients for the migration-background group are the smallest compared to the other three SES groups in this thesis.

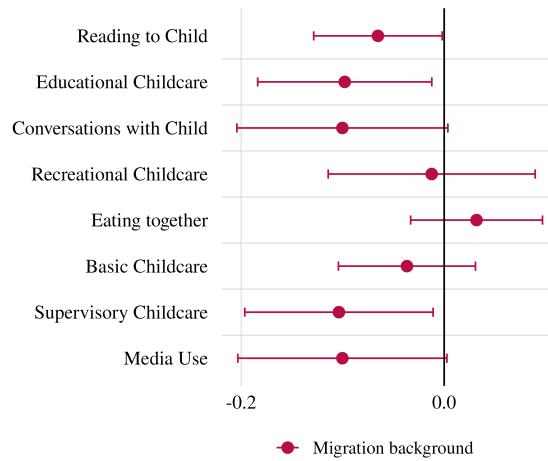
Furthermore, when examining contemporaneous activities in Figure 5.10, the migration background group exhibits a significantly negative coefficient only for supervisory childcare. For all other complementary activities, no significant differences are observed relative to the baseline population.

Table 5.5: Families with migration background: OLS estimates of differences in time investments

	Reading to child	Educational Conversations	Recreational childcare	Recreational childcare
Migration background	-0.12* (0.07)	-0.10* (0.06)	-0.10** (0.05)	-0.01 (0.06)
Baseline controls & Child age FE	Yes	Yes	Yes	Yes
Child age group	0–10	0–18	0–18	0–18
Mean of activity (min/day), migration background	6.19	35.87	18.43	107.70
Mean of activity (min/day), no migration background	7.26	42.04	19.65	121.72
R ²	0.12	0.06	0.21	0.32
N	1,511	3,484	3,484	3,484

Note: OLS estimates of differences in parental time investments by migration background. The group indicator equals one if at least one parent has migration background. The dependent variable is the log of daily minutes spent on the respective childcare activity, defined as ln(minutes + 1), measured at the child level. “Reading to child” is restricted to children aged 0–6, as this activity is only developmentally relevant in early childhood; all other activities cover children and adolescents aged 0–18. All regressions include child age fixed effects. Baseline controls are the child’s gender, the number of children in the household, residence in East versus West Germany, survey month, and whether the child attends daycare (Kita). Robust standard errors are reported in parentheses. All regressions are weighted by household weights. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. *Source:* German Time-Use Survey (2022).

Figure 5.10: Families with migration background: estimated differences across developmentally enriching and complementary time investments



Note: Coefficient estimates of differences in parental time investments by migration background (at least one parent with migration background). Each point shows a weighted OLS estimate from a separate regression where the dependent variable is $\ln(\text{daily minutes} + 1)$ that children received from both parents in the respective activity. “Reading to child” refers to ages 0–6; others to ages 0–18. Controls include child age fixed effects and baseline covariates. 95% confidence intervals shown. *Source:* German Time-Use Survey (2022)

5.5.2 Financial investments

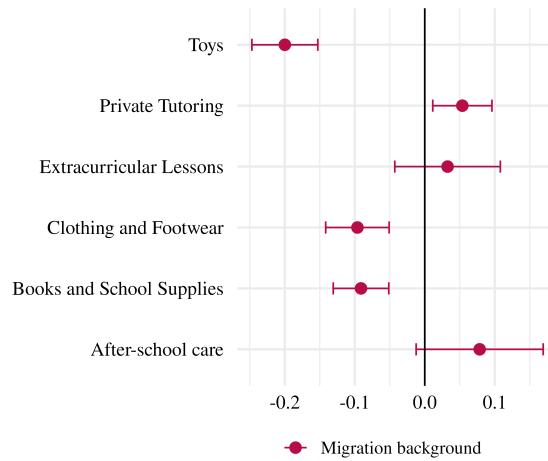
In Table 5.6, children of parents with a migration background show a modest positive association with private tutoring expenditures once household income is controlled for (+5 %, $p < 0.1$). This pattern is predominantly driven by adolescents aged 14 to 15, for whom families with a migration background spend significantly more than families without such a background (see Figure 5.12). A plausible mechanism is reduced scope for parental homework assistance due to language-related constraints. By contrast, children with a migration background receive on average 10% lower investments in extracurricular activities; however, this difference becomes statistically insignificant once income is taken into account. Looking at complementary spending categories, children from migrant families receive significantly lower expenditures on toys, clothing and footwear, as well as books and school supplies (see Figure 5.11).

Table 5.6: Families with migration background: OLS estimates of differences in financial investments

	Private Tutoring		Extracurricular Lessons		After-school Care	
	(A)	(B)	(A)	(B)	(A)	(B)
Migration background	0.03 (0.03)	0.05* (0.03)	-0.10* (0.05)	0.03 (0.05)	0.01 (0.05)	0.08 (0.05)
Equ. net household income			0.13*** (0.01)		0.78*** (0.03)	0.43*** (0.03)
Baseline controls & Child age FE	Yes	Yes	Yes	Yes	Yes	Yes
Mean spending (€/week), migration background		1.36		6.10		12.19
Mean spending (€/week), no migration background		0.98		5.89		13.23
R ²	0.03	0.04	0.02	0.11	0.10	0.13
N	12718	12714	12718	12714	7406	7404

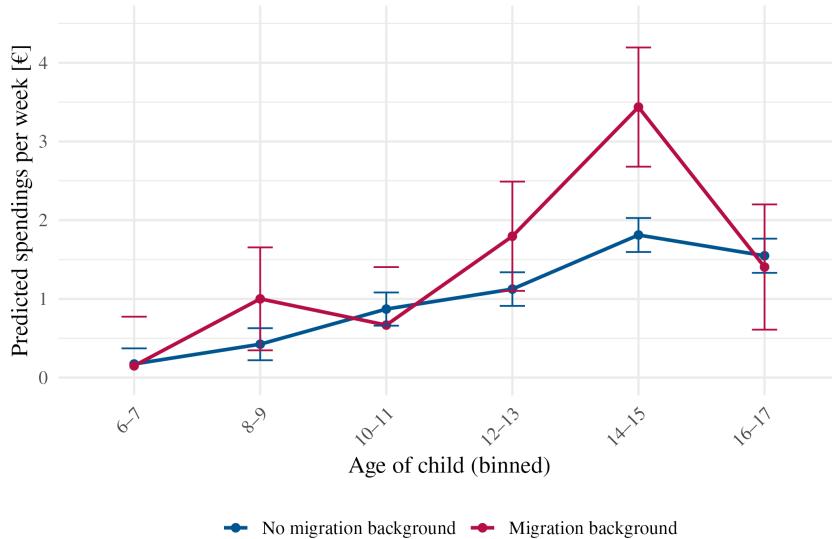
Note: OLS estimates of differences in parental financial investments by parental migration background. The group indicator equals one if at least one parent has migration background. The dependent variable is the log of weekly financial investments in the respective category, defined as $\ln(\text{spending} (\text{€}) + 1)$, measured at the child level. Model (B) additionally includes equivalized net household income (OECD scale) as an explanatory variable. All regressions are weighted using household sampling weights and include child age fixed effects. Baseline controls are the child's gender, the number of children in the household, residence in East versus West Germany, federal state, and the survey quarter. Robust standard errors are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. *Source:* German Income and Expenditure Survey (2018).

Figure 5.11: Families with migration background: estimated differences across developmentally enriching and complementary financial investments



Note: Coefficient estimates of differences in parental financial investments by migration background of parents. Each point shows a weighted OLS estimate from a separate regression where the dependent variable is $\ln(\text{weekly spending} (\text{€}) + 1)$, measured on child level. Controls include child age fixed effects, baseline covariates and net household equivalence income. 95% confidence intervals shown. *Source:* German Income and Expenditure Survey (2018)

Figure 5.12: Migration background: marginal effects by child age for investments in private tutoring



Note: Margin plot showing predicted weekly expenditures (€) on private tutoring by parental migration background across child age bins. Predictions come from weighted linear regression models with an interaction between migration background variable and the child's age category. All models include baseline controls; predictions are evaluated at the sample means of these controls. Vertical bars denote 95% confidence intervals. *Source:* German Income and Expenditure Survey (2018)

5.6 Parental investments by single parents

5.6.1 Time investments

Table 5.7 presents descriptive OLS estimates of differences in children's received time investments between single-parent and two-parent households. The two model specifications differ conceptually in the unit of parental time aggregation.

Model (A), consistent with the specifications in the other results sections, is based on the total amount of time children receive from all parents combined, thereby capturing the overall time endowment to which a child is exposed. In contrast, Model (B) is based on maternal time investments only, thereby holding the identity of the caregiver constant and abstracting from the mechanical effect that single-parent children have access to only one parent's time. In other words, since the child is the analytical unit of analysis, Model (A) captures total parental time exposure, whereas Model (B) focuses on the time investments provided exclusively by mothers.

Model (A) shows that children of single parents receive 30 % less conversational time ($p < 0.01$) and 56 % less recreational childcare ($p < 0.01$) compared to children in two-parent households on average. These associations are highly significant and remain robust

when parental employment status is included as a control (see Appendix C9). Interestingly, there are no statistically significant differences in the domains most closely associated with child development, educational childcare, and reading to the child, indicating that children of single parents do not appear to receive less of these cognitively stimulating investments.

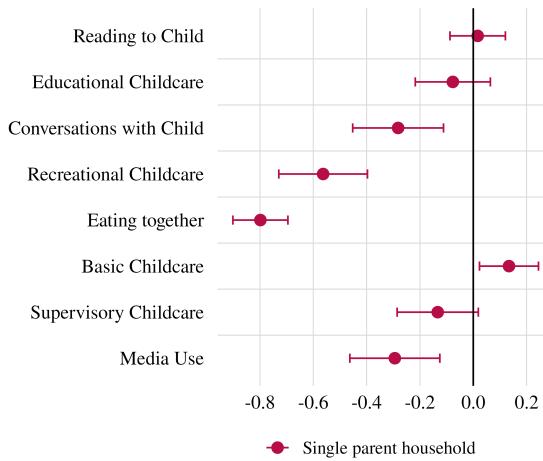
Examining complementary activities in Figure 5.13 reveals a consistent pattern: children of single parents also spend less joint time with parents in media use and shared meals. The coefficient for supervisory childcare is negative but only marginally insignificant, whereas basic childcare shows a significantly positive association. Single parents spend approximately 13.5 % more time on basic childcare, reflecting the necessity of completing essential caregiving tasks that cannot be shared with another adult.

Turning to Model (B), the focus shifts to maternal time investments, comparing single mothers with mothers in two-parent households. Given that the data contains 682 children of single mothers but only 75 children of single fathers, the analysis is restricted to maternal investments. Single mothers do not spend significantly less time in conversations or recreational childcare compared to partnered mothers. The mechanical difference in total time investments observed in Model (A) thus primarily arises from the absence of a second parent's contribution rather than from lower individual effort by single mothers.

Despite their constrained time budgets, single mothers appear to prioritize high-return activities. They spend 38 % more time reading to their child ($p < 0.01$) and 17% more time on educational childcare ($p < 0.05$) than partnered mothers. This allocation pattern suggests that, within their limited available time, single mothers concentrate on the most developmentally beneficial forms of interaction. Consequently, when maternal and paternal investments are summed (Model A), children of single parents exhibit no significant deficit in educational or reading-related activities compared to those from two-parent families.

My results are consistent with recent evidence by Le Forner (2023), who shows that after parental separation, children's accessible time with at least one parent declines substantially, whereas engaged time remains largely stable. This pattern supports a resource-based interpretation of my findings: children in single-parent families experience a reduction in total available parental time, yet the active, developmentally relevant time that parents spend with their children appears to be partly maintained through compensatory adjustments. However, as Le Forner also notes, the scope for such compensation is limited because custodial parents simultaneously face greater time constraints due to increased household responsibilities.

Figure 5.13: Single parents: estimated differences across developmentally enriching and complementary time investments



Note: Coefficient estimates of differences in parental financial investments by family structure. The group variable is one if the child is from a single parent family. Each point shows a weighted OLS estimate from a separate regression where the dependent variable is $\ln(\text{daily minutes} + 1)$ that children received from both parents in the respective activity. “Reading to child” refers to ages 0–6; others to ages 0–18. Controls include child age fixed effects and baseline covariates. 95% confidence intervals shown. *Source:* German Time-Use Survey (2022)

Table 5.7: Single parents: OLS estimates of differences in time investments

	Reading to child		Conversations		Educational childcare		Recreational childcare	
	A	B	A	B	A	B	A	B
Single parent	0.06 (0.10)	0.38*** (0.10)	-0.28*** (0.08)	0.11 (0.09)	-0.08 (0.07)	0.17** (0.07)	-0.56*** (0.08)	-0.10 (0.08)
Baseline controls & Child age FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Child age group	0–10	0–10	0–18	0–18	0–18	0–18	0–18	0–18
Mean (min/day), single parent	5.32	5.69	35.65	36.10	17.14	17.25	68.54	68.28
Mean (min/day), couple parents	7.35	5.41	42.23	30.63	19.63	14.93	129.58	78.38
R ²	0.12	0.11	0.06	0.08	0.21	0.18	0.33	0.31
N	1,511	1,393	3,484	3,290	3,484	3,290	3,484	3,290

Note: OLS estimates of differences in parental time investments family structure. The group indicator equals one if the child is from a single parent family. Model A captures total time received from all parents, whereas Model B considers only mothers' time investments. The dependent variable is the log of daily minutes spent on the respective childcare activity, defined as ln(minutes + 1), measured at the child level. All regressions include child age fixed effects. Baseline controls are the child's gender, the number of children in the household, residence in East versus West Germany, survey month, and whether the child attends daycare (Kita). Robust standard errors are reported in parentheses. All regressions are weighted by household weights. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Source: German Time-Use Survey (2022).

5.6.2 Financial investments

Table 5.8 reports OLS estimates of the association between single parenthood and three categories of financial investment. The unconditional estimates (Model A) indicate that children in single-parent households receive substantially lower financial investments in private tutoring (-6 %, $p < 0.01$) and extracurricular lessons (-28 %, $p < 0.01$) relative to children in two-parent households. Once household income is accounted for (Model B), the tutoring gap vanishes and becomes statistically insignificant, while the coefficient for extracurricular lessons turns positive, suggesting that, conditional on income, children of single parents receive approximately 7 % higher investments ($p < 0.01$). This finding is consistent with previous research showing that children of single parents receive fewer financial investments overall (Bloome, 2017); however, this inequality largely disappears once household income is controlled for (Ginther and Pollak, 2004; Hastings and Schneider, 2021; Lee and McLanahan, 2015). Importantly, even if the difference can be statistically accounted for by income, as a mediating factor, the underlying problem remains. In Germany, children of single parents still receive about 6 % less in private tutoring and 28 % less in extracurricular spending than children from two-parent families, a disparity that is likely to translate into lower developmental and educational outcomes over time.

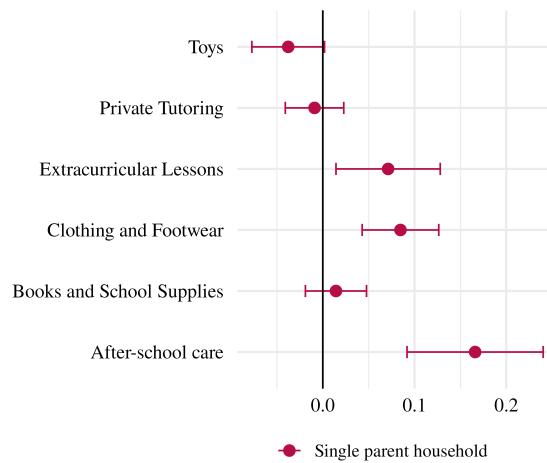
A particularly notable pattern arises for after-school care. Conditional on income, single-parent households allocate significantly more resources (16 %, $p < 0.01$) compared to two-parent households. This finding is consistent with the interpretation that single parents substitute limited parental time with market-based care arrangements. In line with the evidence on time constraints discussed in Section 5.6, this substitution appears both expected and systematic.

When considering overall child-related spending in Figure 5.14, we observe the income-adjusted coefficients for single parents. Strikingly, single parents with the same income as couple families do not spend less in any spending category. This finding aligns partly with U.S. evidence: Bianchi et al. (2004) report that single mothers spend more on their children than married couples, whereas Kaushal et al. (2011) find no systematic association between family structure and the share of child-related expenditures. In contrast, my results indicate that, at comparable income levels, single parents in Germany invest significantly more in extracurricular lessons, clothing, footwear, and after-school care. Hence, conditional on equal financial resources, children of single parents are on average not disadvantaged in terms of financial investments. The problematic aspect, however, is that in Germany around 43 % of single parents are classified as being at risk of poverty, meaning they are not situated at comparable income levels to couple families (Beblo et al., 2025).

Table 5.8: Single parents: OLS estimates of differences in financial investments

	Private Tutoring		Extracurricular Lessons		After-school care	
	(A)	(B)	(A)	(B)	(A)	(B)
Single parent	-0.06*** (0.02)	-0.01 (0.02)	-0.28*** (0.03)	0.07** (0.03)	-0.06 (0.04)	0.16*** (0.04)
Equ. net household income			0.13*** (0.02)		0.79*** (0.03)	0.47*** (0.03)
Baseline controls & Child age FE	Yes	Yes	Yes	Yes	Yes	Yes
Mean spending (€/week), single parent	0.85		4.18		7.88	
Mean spending (€/week), couple parent	1.05		6.31		13.86	
R ²	0.03	0.04	0.03	0.11	0.10	0.13
N	12718	12714	12718	12714	7406	7404

Note: OLS estimates of differences in parental time investments family structure. The group indicator equals one if the child is from a single parent family. The dependent variable is the log of weekly financial investments in the respective category, defined as $\ln(\text{spending} (\text{€}) + 1)$, measured at the child level. Model (B) additionally includes equivalized net household income (OECD scale) as an explanatory variable. All regressions are weighted using household sampling weights and include child age fixed effects. Baseline controls are the child's gender, the number of children in the household, residence in East versus West Germany, federal state, and the survey quarter. Robust standard errors are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Source: German Income and Expenditure Survey (2018).

Figure 5.14: Single parents: estimated differences across developmentally enriching and complementary financial investments


Note: Coefficient estimates of differences in parental financial investments by family structure. The group variable is one if the child is from a single parent family. Each point shows a weighted OLS estimate from a separate regression where the dependent variable is $\ln(\text{weekly spending} (\text{€}) + 1)$, measured on child level. Controls include child age fixed effects, baseline covariates and net household equivalence income. 95% confidence intervals shown. Source: German Income and Expenditure Survey (2018)

5.6.3 Single parents and the risk of poverty

Around 20 percent of all German families are single-parent households (Beblo et al., 2025). Among them, 43 % are at risk of poverty, and the share rises to 45 percent when considering single mothers only. Similar proportions are reflected in my analytical sample (see Appendix B). This indicates that single parents, particularly those facing economic disadvantage, constitute a sizable and socioeconomically relevant segment of the German population that warrants closer examination. Model (1) in Table C8 in the Appendix reports OLS regression models in which parental time investments are regressed on indicators for single parenthood, poverty risk, and their interaction. All other model settings follow the specifications introduced in the previous sections. The regressions in Table C7 are based on maternal time investments, rather than summed parental investment. Consistent with earlier findings in this thesis, single mothers devote substantially more time to reading (+38.7 %, $p < 0.05$) and educational childcare (+20.6 %, $p < 0.01$) compared to partnered mothers, suggesting compensatory behavior to offset the absence of a second caregiver. The coefficient for poverty risk, estimated among partnered families, is not statistically significant, implying that differences in maternal time investments are primarily associated with family structure rather than income constraints. A subgroup analysis of single parents by risk of poverty reveals the same patterns as the main analysis (see Table C11). But due to the small sample size, these results should be interpreted with caution.

Turning to the financial counterparts. Table C10 reports OLS estimates where the log of parental financial investments is regressed on indicators for single parenthood, poverty risk, and their interaction. The results reveal a strong negative association between poverty and extracurricular investment. Among couple households, being at risk of poverty is associated with substantially lower investments (71 %, $p < 0.01$), whereas single parents invest less only among non-poor families (18 %, $p < 0.01$). The positive and significant interaction term (0.29, $p < 0.01$) indicates that the negative poverty–spending association is less pronounced among single-parent households. This suggests that under financial strain, single parents may perceive certain extracurricular or after-school activities as essential expenditures, thereby reducing their cutbacks in these domains relative to two-parent families.

5.6.4 Single parents and education

Among single parents in Germany, educational attainment represents a second key dimension of disadvantage. Around 20 % of single parents have no vocational qualification, and 89 % do not hold a university or applied university degree, placing them in the lower-

education category in the sample of this thesis. Model (2) in Appendix Table C7 presents log-linear regression models with interaction terms for single parenthood and low parental education in columns (2). Importantly, the most developmentally valuable time investments, reading and educational childcare, are significantly and negatively associated with low parental education. The coefficient for single parenthood (among the non-low educated)² is statistically insignificant, as is the interaction term. Hence, there is no evidence of compensatory behavior among single mothers. Instead, children raised by low-educated single mothers appear to experience lower levels of cognitively enriching time investments primarily due to their mothers' educational background rather than their family structure.

Turning to financial investments, Model (2) in Table C10, the estimates for extracurricular lessons indicate that parental education is strongly negatively associated with expenditure levels. Low-educated parents spend approximately 65 % less ($p < 0.01$) on extracurricular activities than highly educated parents, while the coefficients for single parenthood are small and statistically insignificant. This suggests that differences in parental education, rather than family structure, are the main factor correlated with variation in extracurricular investments. Among single parents, low parental education is also associated with substantially lower spending on private tutoring. The combined coefficient (-0.10, $p < 0.05$) implies that single parents with low education spend roughly 10 % less than their highly educated counterparts, whereas the corresponding difference among couple households is only about 3 % ($p < 0.05$). The negative and significant interaction term therefore indicates that the education gradient in private tutoring expenditures is considerably steeper among single parents, suggesting that educational disparities are more pronounced within this group.

5.7 Robustness checks

To assess robustness, I perform several specification and sample checks. All corresponding tables are provided in Appendix D. Note that the previous analyses based on the mothers-only sample and those controlling for employment can also partly be seen as robustness checks.

5.7.1 Sample restrictions

Father-only Sample: To complement the mother-only estimates also discussed in the Results Section, I re-run the main specifications on the father-only sample. Coefficient signs remain

²This thesis defines low education as neither parent holding a tertiary degree and high education as both parents holding one. Not low education therefore does not imply high education.

fully consistent, though some effects for children from migrant and lower-educated families lose significance. This attenuation aligns with fathers' generally smaller time budgets and different activity compositions with their children (see Section 5.1 and Figures C2–C1).

One-Child Households: Restricting the sample to families with only one child slightly reduces statistical significance—several coefficients shift from the 5 % and two from the 10 % level to insignificance, while signs and magnitudes remain consistent with the main results. Also note that the main specification already controls for the number of children in the household.

5.7.2 Functional form robustness

Absolute Values Instead of Log Transformations: Using minutes per week as the dependent variable, coefficients capture minute-per-day gaps between disadvantaged and reference groups. Results remain robust and closely align with mean differences in the main tables. For single parents, the gap becomes weakly significant—about 2 minutes less reading ($p < 0.1$) and 2.5 minutes less educational childcare ($p < 0.05$) per day—indicating marginally lower investments without altering overall patterns. This minor deviation merely attains statistical significance when using absolute rather than log-transformed values. Similarly, employing absolute euros instead of log spending yields consistent results, with and without income controls, confirming robustness to functional form assumptions.

5.7.3 Alternative variable definitions

Higher Parental Education: To validate the measurement of low parental education, I re-estimate all models using a high-education indicator equal to one if both parents hold a university degree. As expected, coefficients reverse in sign across all outcomes. The only exception is private tutoring, where highly educated parents spend about 3% less—an economically negligible difference of roughly €0.06.

Income Heterogeneity: I further estimate specifications including net equivalized income quartiles as explanatory variables. For financial investments, spending increases monotonically across income quartiles, with differences primarily driven by the top quartile, consistent with existing evidence discussed in Section 2.

5.7.4 Multiple disadvantage specification

Additionally, I estimate regressions including all four disadvantage indicators simultaneously to assess their joint effects on parental investments.

Chapter 6

Conclusion

This thesis examines how parents in Germany invest their time and financial resources in their children and how these investments vary across the child's life course and between disadvantaged groups, taking an exploratory approach. The analysis is based on data from the German Time Use Survey (2022) and the German Expenditure Survey (2018) and focuses on developmentally enriching forms of investment that support children's cognitive and emotional development. For example, reading to a child is a key early investment, fostering language skills and showing a proven causal impact on later educational outcomes (Price and Kalil, 2019a).

The findings show that as children grow older, parental time investments shift from hands-on care in early childhood to shared meals and conversations during adolescence, while financial investments transition from consumption-oriented spending to education-related expenses, reflecting a growing focus on children's human capital development.

Children from less-educated families receive on average 25 % ($p < 0.01$) less reading time from their parents. They also receive about 16 % ($p < 0.01$) less time in educational childcare, and these disadvantages extend to the financial domain, where parents invest less in developmentally enriching activities such as tutoring. This inequality largely reflects suboptimal prioritization of parental investments, both in time and money, rather than a mere lack of resources. Family policies simply providing additional time or financial means for parents are therefore unlikely to close these gaps. More effective approaches would aim to influence parents' prioritization directly, for instance by raising awareness of high-impact activities. An emerging and promising concept in this regard is digital tools, which send parents open-ended prompts to encourage more frequent and higher-quality conversations with their children, potentially offering a scalable and efficient way to support lower-educated families (Lu and Kalil, 2025).

Children from families at risk of poverty face disadvantages in both time and financial

investments. They receive significantly less time in conversations, educational childcare, and recreational activities, as well as 13 % less private tutoring and 63 % less extracurricular lessons ($p < 0.01$). Although these parents appear to set reasonable priorities given their limited resources, the results show that poverty directly constrains children's developmental opportunities. The fact that low-income families can invest less in their children's development may be one mechanism through which socioeconomic disadvantage is transmitted across generations. This highlights Germany's persistently low social mobility (Csathó, 2023). Policy measures should therefore aim to strengthen children's potential by providing additional resources, such as free educational programs, while the most effective lever remains combating child poverty itself.

Single parents, by contrast, appear to allocate their limited resources strategically to their children's benefit. Single mothers compensate for the absence of a second caregiver by investing more time in the two most developmentally valuable activities, reading and educational childcare, and when controlling for income, they even spend more money on their children than partnered parents. However, since single parents in Germany are disproportionately affected by poverty and low education, they face a double disadvantage. Policies that directly support their financial and time resources, such as the advance child maintenance scheme (*Unterhaltsvorschuss*), can therefore have particularly strong effects on children's development.

For families with a migration background, differences are comparatively small: parents spend slightly less time in developmentally enriching activities but, when income is accounted for, somewhat more on private tutoring.

Since the analysis is purely descriptive, a key limitation is that no causal relationships can be inferred. It therefore remains unclear whether group membership itself drives the observed inequalities in parental investments. Furthermore, the study does not include child outcome variables, which limits the ability to assess the actual developmental impact of different parental investments. As a result, the degree of "developmental enrichingness" of each activity can only be approximated conceptually, and a precise ranking of investment quality is not possible.

Nevertheless, the results are relevant, as they reveal where inequalities in parental inputs most directly affect children. This thesis thus offers a first child-level perspective on the mechanisms of disadvantage within German families and opens avenues for future research on the causal pathways of these differences and their responsiveness to family policy interventions, such as those studied by Jessen et al. (2022).

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Appendices

A Data

Generation of the analytical sample and matching algorithms

This section describes in detail how the analytical sample was generated from the German Time Use Survey. It outlines the procedures used to identify and match joint parent–child activities, which differ depending on the child’s age, as well as the aggregation steps used to construct daily activity measures at the child level. Furthermore, it explains the thematic classification of activities into developmentally relevant and complementary categories and the distinction between primary and secondary activities.

To identify joint parent-child activities, different procedures are applied depending on the child’s age. For children aged 10 or older, the time diary includes information on whether each 10-minute time slot was spent with at least one parent. These slots are retained and matched to the corresponding parental time slots and reported activities. Only time slots in which both the child and at least one parent engaged in the same primary or secondary activity are included in the final sample. Additionally, time slots in which parents reported explicit childcare activities were included even if the child reported a related but differently coded activity. For instance, if the parent reported “doing sports with a child” and the child reported “playing basketball,” the activities were still matched. Matched time slots were aggregated at the child level across all parents to calculate average daily durations per activity. So, minutes per day are used as the unit of analysis to ensure comparability across individuals. Based on this aggregation, Table B1 displays the ten most frequent activities jointly undertaken by parents and children aged 10 or older.

The identification of shared parent-child time slots for children under the age of 10 differs due to the structure of the data. Since children in this age group do not report their own time-use, shared activities are identified indirectly based on parental reports indicating whether an activity was performed with a child under 10. However, this information only confirms the presence of at least one child in that age group and does not allow identification

of a specific child when multiple siblings under 10 are present. To avoid ambiguity, only children under 10 without a sibling in the same age group were retained in the sample. This restriction reduces the number of household with children under 10 by 62.5 percent but follows the approach of previous studies (Jessen et al., 2022). Based on this subset, Table B2 presents the ten most frequent activities jointly performed by parents and their children under 10. In total, the final analytical sample comprises around 3,485 children from 2,538 families.

Given the large number of reported joint parent-child activities at the three-digit level, it was necessary to group activities thematically. In a first step, only childcare-related activities were retained, while unrelated categories such as shopping or sleeping were excluded as it has no significant impact on cognitive child development relative to other categories (Fiorini and Keane, 2014). This restriction reflects the focus of the study on the content of parent-child time rather than its total duration.

Building on the developmental framework established in Section 3, the 3-digit activity codes were classified into four developmental and four complementary activity groups. The composition of these activity groups is presented in Table 4.1, with detailed mappings from the Time Use Survey provided in Appendix Table A1.

The classification of activities into primary activity (PA) and secondary activity (SA) follows a child-centered approach. While PA generally involve more focused parental engagement, certain SA can still provide meaningful developmental inputs and are therefore included when the child's experience is plausibly equivalent. For basic childcare, shared meals, and media use, only PA are retained. These activities are assumed to be developmentally relevant only when they occur as the main focus of parental attention. Eating "on the side" or media consumption while multitasking is unlikely to offer comparable interaction quality. In contrast, recreational and educational childcare, conversations, supervisory care, and reading to the child are aggregated across PA and SA. Conversations and supervisory care are often embedded in other tasks by definition; yet from the child's perspective, parental presence and verbal engagement are still received. For educational childcare, 66% of reports occur as PA, but the remaining 44% as SA (e.g., reading a newspaper together during a train ride) also constitute cognitive investments from the child's perspective. Similarly, recreational activities (81% PA) often take place alongside other tasks, and even secondary instances of joint play are developmentally relevant. Finally, for reading to the child, more than 80 % of cases are classified as PA. However, from the child's perspective, the developmental "input" is independent of the parent's activity status. Whether the parent reports reading as the main activity or as a concurrent one, the child still receives the same verbal and cognitive stimulation. Therefore, both PA and SA are included.

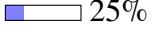
Table A1: Concordance of the activities from the German Time Use Survey to childcare activities defined in this thesis

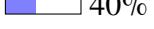
Activity Group	Activity Code	Variable Description
Basic Childcare	471	Personal care, feeding, and dressing of a child at home, medical
Conversations	615	Conversations with non-household members (in person)
Conversations	474	Conversations with child
Conversations	611	Conversations with household members (in person)
Educational Childcare	811	Reading newspapers (including electronic)
Educational Childcare	813	Reading books (including electronic)
Educational Childcare	472	Helping child with homework/giving instructions
Educational Childcare	477	Reading to child/telling stories
Food	120	Eating and drinking
Media	830	Listening to radio, music, or other audio recordings
Media	820	Watching TV, streaming, and video-on-demand
Recreational Childcare	473	Playing/sports with child
Recreational Childcare	712	Jogging/running/nordic walking
Recreational Childcare	626	Visiting circus/amusement parks/fairs/festivals, excursions
Recreational Childcare	740	Visual/craft/performing and literary arts, and making music
Recreational Childcare	715	Ball games (including frisbee, ball, etc.)
Recreational Childcare	441	Gardening/plant care outdoors
Recreational Childcare	627	Going out (e.g., cafés, bars, discos, restaurants)
Recreational Childcare	642	Family celebrations/private parties
Recreational Childcare	713	Cycling and roller sports
Recreational Childcare	622	Theater/concerts/opera/musical
Recreational Childcare	714	Winter sports
Recreational Childcare	475	Accompanying child to leisure appointments
Recreational Childcare	759	Other/unspecified technical and other hobbies
Recreational Childcare	621	Cinema
Recreational Childcare	711	Walking/hiking
Recreational Childcare	446	Walking the dog
Recreational Childcare	445	Pet care
Recreational Childcare	532	Participating in religious activities, ceremonies, and prayers
Recreational Childcare	628	Visiting zoos, botanical gardens, nature reserves, etc.
Recreational Childcare	763	Playing on PC/laptop or game console
Recreational Childcare	761	Playing games together (indoors or outdoors), without computer
Recreational Childcare	719	Other sports and outdoor activities
Recreational Childcare	717	Water sports
Recreational Childcare	716	Gymnastics/fitness/health sports
Recreational Childcare	623	Art exhibitions/museums
Recreational Childcare	625	Attending sports events (as spectator)
Recreational Childcare	641	Visiting or receiving visitors
Recreational Childcare	444	Caring for livestock (incl. horses)
Travel	953	Travel time – attending meetings, religious activities
Travel	947	Travel time – childcare
Travel	991	Travel time – traveling
Travel	962	Travel time – entertainment/culture
Travel	970	Travel time – sports/hobbies/games
Supervisory Childcare	478	Supervision of a child at home
Supervisory Childcare	476	Accompanying child to other appointments

Note: Concordance table mapping the three-digit activity codes from the German Time Use Survey to childcare-related activities. The Activity Groups are defined by the author based on a child development framework. Activity Codes and Variable Descriptions are taken from the original German Time Use Survey dataset, with descriptions translated from German into English.

B Descriptive statistics

Table B1: Top five activities jointly conducted by parents and children aged 10 or older

Primary Activity	Min/day	Share	Cum. Share
Eating and drinking	41	25%	 25%
Watching TV, streaming, or video-on-demand	23	14%	 39%
Conversations with a child	16	10%	 49%
Supervising a child at home	10	6%	 54%
Attending family celebrations or private parties	9	5%	 60%

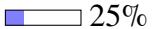
Secondary Activity	Min/day	Share	Cum. Share
Conversations with a child	16	20%	 20%
Conversations with household members (in person)	16	20%	 40%
Supervising a child at home	10	12%	 52%
Listening to radio, music, or audio content	6	7%	 59%
Playing or doing sports with a child	5	6%	 65%

Note: This table reports the five most frequently observed primary and secondary activities jointly conducted by parents and children aged 10 or older during daily childcare. For each activity, average daily duration (in minutes), relative share of total joint childcare time, and cumulative share are shown. Primary activities represent the dominant engagement, while secondary activities denote concurrent but subordinate actions.

Source: German Time Use Survey (2022)

Table B2: Top five activities jointly conducted by parents and children under 10

Primary Activity	Min/day	Share	Cum. Share
Eating and drinking	65	22%	 22%
Supervising a child at home	35	12%	 33%
Playing or doing sports with a child	32	11%	 44%
Child care at home: hygiene, feeding, dressing, medical care	31	10%	 54%
Watching TV, streaming, or video-on-demand	19	6%	 61%

Secondary Activity	Min/day	Share	Cum. Share
Supervising a child at home	37	25%	 25%
Conversations with household members (in person)	22	15%	 40%
Conversations with a child	16	11%	 51%
Listening to radio, music, or audio content	15	10%	 61%
Visiting others or receiving guests	12	8%	 69%

Note: This table reports the five most frequently observed primary and secondary activities jointly conducted by parents and children under age 10 during daily childcare. For each activity, average daily duration (in minutes), relative share of total joint childcare time, and cumulative share are shown. Primary activities represent the dominant engagement, while secondary activities denote concurrent but subordinate actions.

Source: German Time Use Survey (2022)

Table B3: Children's age distribution in the analytical time-investment sample

Child age	Single years		Two-year bins		
	Freq.	Percent	Age group	Freq.	Percent
0	109	3.13	0–1	292	8.38
1	183	5.25			
2	116	3.33	2–3	212	6.08
3	96	2.76			
4	102	2.93	4–5	204	5.86
5	102	2.93			
6	132	3.79	6–7	278	7.98
7	146	4.19			
8	163	4.68	8–9	326	9.36
9	163	4.68			
10	199	5.71	10–11	520	14.93
11	321	9.21			
12	303	8.70	12–13	629	18.05
13	326	9.36			
14	316	9.07	14–15	566	16.25
15	250	7.18			
16	224	6.43	16–17	457	13.12
17	233	6.69			
Total	3,484	100.00	Total	3,484	100.00

Note: All statistics are weighted using household sampling weights. The relatively small number of children under age 10 reflects a sample restriction: to ensure unambiguous identification of time slots for children under 10, only households in which no other child under age 10 is present were retained.

Source: German Time Use Survey (2022)

Table B4: Descriptive statistics for single parents in the time-investment sample

Variable	Mean	Std. Dev.
Single parent (dummy, $N = 3,484$)	0.18	0.38
At risk of poverty (if single parent, $N = 758$)	0.33	0.47
Low parental education (if single parent, $N = 758$)	0.71	0.45

Note: Weighted descriptive statistics for single parents in the estimation sample, using household sampling weights.

Source: German Time Use Survey (2022)

Table B5: Descriptive statistics for single parents in the financial-investment sample

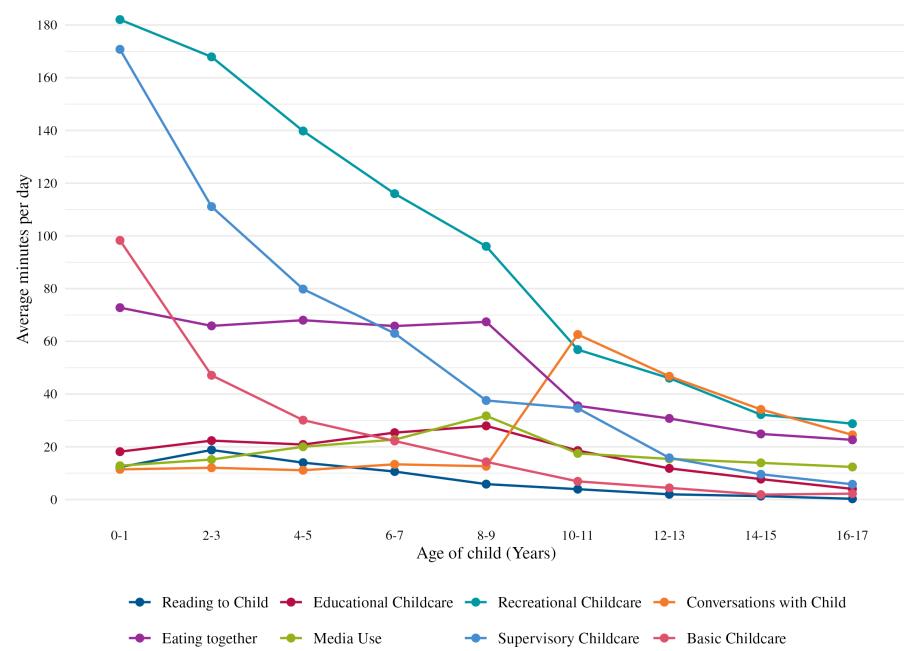
Variable	Mean	Std. Dev.
Single parent (dummy, $N = 19,618$)	0.15	0.35
At risk of poverty (if single parent, $N = 2,881$)	0.42	0.49
Low parental education (if single parent, $N = 2,881$)	0.69	0.46

Note: Weighted descriptive statistics for single parents in the estimation sample, using household sampling weights.

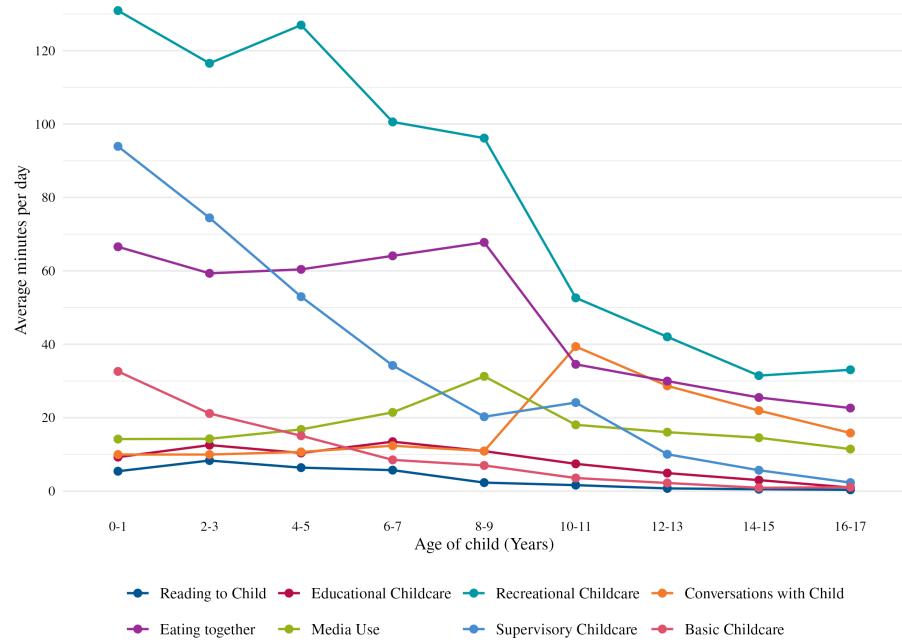
Source: German Income and Expenditure Survey (2018)

C Results

Figure C1: Development of shared mother–child activities across child age



Note: The figure shows the average daily minutes that children receive across activities by its mother, by child age (two-year intervals). Reported minutes cannot be summed across activities as activities may overlap within the same time slots. Reading to child is listed separately but also included in educational childcare. *Source:* German Time Use Survey (2022).

Figure C2: Development of shared father–child activities across child age

Note: The figure shows the average daily minutes that children receive across activities by its father, by child age (two-year intervals). Reported minutes cannot be summed across activities as activities may overlap within the same time slots. Reading to child is listed separately but also included in educational childcare. *Source:* German Time Use Survey (2022).

Table C1: Lower-educated parents and employment: OLS estimates of differences in time investments

	Reading to child	Educational Conversations	Childcare	Recreational childcare
Lower educated parents	-0.20** (0.09)	-0.12 (0.07)	-0.13** (0.06)	0.18** (0.07)
Full-time equivalent	0.02 (0.07)	0.17*** (0.06)	0.07 (0.05)	0.21*** (0.06)
Baseline controls & Child age FE	Yes	Yes	Yes	Yes
Child age group	0–10	0–18	0–18	0–18
Mean of activity (min/day), lower educated	5.25	41.50	17.64	114.37
Mean of activity (min/day), not lower educated	8.94	40.57	20.93	123.59
R ²	0.12	0.07	0.21	0.33
N	1,434	3,245	3,245	3,245

Note: OLS estimates of differences in parental time investments. Model (A) includes the group indicator, which equals one if neither parent holds a tertiary degree, and the baseline set of controls. Model (B) additionally includes the parental full-time equivalent (FTE) as an explanatory variable. The dependent variable is the log of daily minutes spent on the respective childcare activity, defined as $\ln(\text{minutes} + 1)$, measured at the child level. “Reading to child” is restricted to children aged 0–6, as this activity is only developmentally relevant in early childhood; all other activities cover children and adolescents aged 0–18. All regressions include child age fixed effects. Baseline controls are the child’s gender, the number of children in the household, residence in East versus West Germany, survey month, and whether the child attends daycare (Kita). Robust standard errors are reported in parentheses. All regressions are weighted by household weights. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Source: German Time-Use Survey (2022).

Table C2: Lower-educated parents: OLS estimates of differences in time investments of mothers

	Reading to child	Educational Conversations childcare	Recreational childcare	
Lower parental education	-0.19** (0.09)	-0.16** (0.07)	-0.11* (0.06)	0.18** (0.07)
Baseline controls & Child age FE	Yes	Yes	Yes	Yes
Child age group	0–10	0–18	0–18	0–18
Mean of activity (min/day), lower educated	4.40	32.06	14.72	74.56
Mean of activity (min/day), not lower educated	6.70	30.96	16.02	79.17
R ²	0.11	0.08	0.18	0.31
N	1,393	3,290	3,290	3,290

Note: OLS estimates of differences in maternal time investments. The group indicator equals one if neither parent holds a tertiary degree. The dependent variable is the log of daily minutes spent on the respective childcare activity, defined as $\ln(\text{minutes} + 1)$, measured at the child level. “Reading to child” is restricted to children aged 0–6, as this activity is only developmentally relevant in early childhood; all other activities cover children and adolescents aged 0–18. All regressions include child age fixed effects. Baseline controls are the child’s gender, the number of children in the household, residence in East versus West Germany, survey month, and whether the child attends daycare (Kita). Robust standard errors are reported in parentheses. All regressions are weighted by household weights. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. *Source:* German Time-Use Survey (2022).

Table C3: Risk of poverty and employment: OLS estimates of differences in time investments of mothers

	Reading to child	Conversations	Educational childcare	Recreational childcare
At risk of poverty	0.11 (0.16)	-0.10 (0.13)	-0.20* (0.10)	-0.11 (0.13)
Full-time equivalent	0.06 (0.08)	0.16** (0.07)	0.03 (0.06)	0.17** (0.07)
Baseline controls & Child age FE	Yes	Yes	Yes	Yes
Child age group	0–10	0–18	0–18	0–18
Mean of activity (min/day), risk of poverty	6.19	36.23	17.36	90.83
Mean of activity (min/day), no risk of poverty	7.11	41.78	19.46	122.85
R ²	0.11	0.07	0.21	0.33
N	1,434	3,245	3,245	3,245

Note: OLS estimates of differences in parental time investments. Model (A) includes the group indicator, which equals one if the child lives in a family at risk of poverty, and the baseline set of controls. Model (B) additionally includes the parental full-time equivalent (FTE) as an explanatory variable. The dependent variable is the log of daily minutes spent on the respective childcare activity, defined as $\ln(\text{minutes} + 1)$, measured at the child level. “Reading to child” is restricted to children aged 0–6, as this activity is only developmentally relevant in early childhood; all other activities cover children and adolescents aged 0–18. All regressions include child age fixed effects. Baseline controls are the child’s gender, the number of children in the household, residence in East versus West Germany, survey month, and whether the child attends daycare (Kita). Robust standard errors are reported in parentheses. All regressions are weighted by household weights. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Source: German Time-Use Survey (2022).

Table C4: Families at risk of poverty: OLS estimates of differences in time investments of mothers

	Reading to child	Educational Conversations	Recreational childcare	
Risk of poverty	0.09 (0.14)	-0.09 (0.11)	-0.12 (0.10)	-0.10 (0.11)
Baseline controls & Child age FE	Yes	Yes	Yes	Yes
Child age group	0–10	0–18	0–18	0–18
Mean of activity (min/day), risk of poverty	5.55	31.56	15.91	69.02
Mean of activity (min/day), no risk of poverty	5.44	31.55	15.23	77.82
R ²	0.10	0.07	0.18	0.31
N	1,393	3,290	3,290	3,290

Note: OLS estimates of differences in maternal time investments. The group indicator equals one if the child lives in a family at risk of poverty. The dependent variable is the log of daily minutes spent on the respective childcare activity, defined as $\ln(\text{minutes} + 1)$, measured at the child level. “Reading to child” is restricted to children aged 0–6, as this activity is only developmentally relevant in early childhood; all other activities cover children and adolescents aged 0–18. All regressions include child age fixed effects. Baseline controls are the child’s gender, the number of children in the household, residence in East versus West Germany, survey month, and whether the child attends daycare (Kita). Robust standard errors are reported in parentheses. All regressions are weighted by household weights. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Source: German Time-Use Survey (2022).

Table C5: Families with migration background: OLS estimates of differences in time investments of mothers

	Reading to child	Educational Conversations	Recreational childcare	
Migration background	-0.08 (0.07)	-0.13** (0.06)	-0.07 (0.05)	-0.07 (0.06)
Baseline controls & Child age FE	Yes	Yes	Yes	Yes
Child age group	0–10	0–18	0–18	0–18
Mean of activity (min/day), migration background	4.82	27.24	14.92	69.17
Mean of activity (min/day), no migration background	5.70	32.60	15.75	79.46
R ²	0.11	0.08	0.18	0.31
N	1,393	3,290	3,290	3,290

Note: OLS estimates of differences in maternal time investments. The group indicator equals one if the child lives in a family where at least one parent has migration background. The dependent variable is the log of daily minutes spent on the respective childcare activity, defined as $\ln(\text{minutes} + 1)$, measured at the child level. “Reading to child” is restricted to children aged 0–6, as this activity is only developmentally relevant in early childhood; all other activities cover children and adolescents aged 0–18. All regressions include child age fixed effects. Baseline controls are the child’s gender, the number of children in the household, residence in East versus West Germany, survey month, and whether the child attends daycare (Kita). Robust standard errors are reported in parentheses. All regressions are weighted by household weights. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Source: German Time-Use Survey (2022).

Table C6: Migration background and employment: OLS estimates of differences in time investments of mothers

	Reading to child	Educational Conversations with child	Recreational childcare	
Migration background	-0.12* (0.07)	-0.10* (0.06)	-0.11** (0.05)	-0.04 (0.06)
Full-time equivalent (FTE_EMP)	0.03 (0.07)	0.18*** (0.06)	0.08 (0.05)	0.19*** (0.06)
Baseline controls & Child age FE	Yes	Yes	Yes	Yes
Child age group	0–10	0–18	0–18	0–18
Mean of activity (min/day), migration background	6.19	35.87	18.43	107.70
Mean of activity (min/day), no migration background	7.26	42.04	19.65	121.72
R ²	0.12	0.07	0.21	0.33
N	1,434	3,245	3,245	3,245

Note: OLS estimates of differences in parental time investments. Model (A) includes the group indicator, which equals one if at least one parent has a migration background, and the baseline set of controls. Model (B) additionally includes the parental full-time equivalent (FTE) as an explanatory variable. The dependent variable is the log of daily minutes spent on the respective childcare activity, defined as $\ln(\text{minutes} + 1)$, measured at the child level. “Reading to child” is restricted to children aged 0–6, as this activity is only developmentally relevant in early childhood; all other activities cover children and adolescents aged 0–18. All regressions include child age fixed effects. Baseline controls are the child’s gender, the number of children in the household, residence in East versus West Germany, survey month, and whether the child attends daycare (Kita). Robust standard errors are reported in parentheses. All regressions are weighted by household weights. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Source: German Time-Use Survey (2022).

Table C7: Single Parents: OLS estimates of time investments of mothers with interactions by poverty risk and parental education

	Conversations		Reading to the child		Educational childcare		Recreational childcare	
	(1) Poverty	(2) Low educ.	(1) Poverty	(2) Low educ.	(1) Poverty	(2) Low educ.	(1) Poverty	(2) Low educ.
<i>Single parent and risk of poverty</i>								
Single parent	0.118		0.387**		0.206***		-0.019	
	(0.097)		(0.165)		(0.078)		(0.094)	
Household at risk of poverty	-0.171		0.215		-0.202		0.014	
	(0.161)		(0.312)		(0.131)		(0.156)	
Single × At risk of poverty	0.102		-0.321		0.047		-0.240	
	(0.232)		(0.426)		(0.192)		(0.221)	
<i>Single parent and low parental education</i>								
Single parent	0.157		0.325		0.159		-0.130	
	(0.149)		(0.232)		(0.115)		(0.130)	
Low parental education	-0.175**		-0.372***		-0.135**		0.192**	
	(0.078)		(0.141)		(0.067)		(0.078)	
Single × Low parental education	-0.019		0.147		0.052		-0.007	
	(0.181)		(0.301)		(0.145)		(0.166)	
Child age group	0-18	0-18	0-6	0-6	0-18	0-18	0-18	0-18
Baseline Controls and Child age FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Includes household income	No	Yes	No	Yes	No	Yes	No	Yes
Observations	3290	3290	762	762	3290	3290	3290	3290
R ²	0.076	0.077	0.050	0.060	0.181	0.181	0.307	0.308

Note: OLS estimates of differences in parental time investments by family structure, including interaction terms with indicators for poverty risk and low parental education. Each column reports coefficients from separate semi-logarithmic regressions of daily minutes spent on the respective childcare activity. All models include baseline demographic controls and child age fixed effects. Robust standard errors are shown in parentheses. Regressions are weighted by household weights. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Source: German Time-Use Survey (2022).

Table C8: Single Parents: OLS estimates of time investments of both parents with interactions by poverty risk and parental education

	Conversations		Reading to the child		Educational childcare		Recreational childcare	
	(1) Poverty	(2) Low educ.	(1) Poverty	(2) Low educ.	(1) Poverty	(2) Low educ.	(1) Poverty	(2) Low educ.
<i>Single parent and risk of poverty</i>								
Single parent	-0.31***		-0.00		-0.04		-0.52***	
	(0.09)		(0.16)		(0.07)		(0.09)	
Household at risk of poverty	-0.22		0.20		-0.19		-0.13	
	(0.16)		(0.30)		(0.12)		(0.16)	
Single × At risk of poverty	0.26		-0.23		0.03		-0.02	
	(0.23)		(0.41)		(0.18)		(0.22)	
<i>Single parent and low parental education</i>								
Single parent	-0.26*		-0.05		-0.10		-0.64***	
	(0.14)		(0.22)		(0.10)		(0.11)	
Low parental education	-0.12		-0.35**		-0.16**		0.19**	
	(0.08)		(0.14)		(0.06)		(0.07)	
Single × Low parental education	0.00		0.16		0.08		0.05	
	(0.17)		(0.29)		(0.13)		(0.15)	
Child age group	0-18	0-18	0-6	0-6	0-18	0-18	0-18	0-18
Baseline Controls and Child age FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Includes household income	No	Yes	No	Yes	No	Yes	No	Yes
Observations	3484	3484	840	840	3484	3484	3484	3484
R ²	0.065	0.065	0.042	0.050	0.213	0.214	0.331	0.333

Note: OLS estimates of differences in parental time investments by family structure, including interaction terms with indicators for poverty risk and low parental education. Each column reports coefficients from separate semi-logarithmic regressions of daily minutes spent on the respective childcare activity. All models include baseline demographic controls and child age fixed effects. Robust standard errors are shown in parentheses. Regressions are weighted by household weights. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Source: German Time-Use Survey (2022).

Table C9: Single Parents and employment: OLS estimates of differences in time investments of mothers

	Reading to child	Conversations	Educational childcare	Recreational childcare
Single parent	0.14 (0.13)	-0.21* (0.11)	-0.02 (0.09)	-0.60*** (0.11)
Full-time equivalent	0.08 (0.10)	0.10 (0.08)	0.07 (0.07)	-0.05 (0.08)
Baseline controls & Child age FE	Yes	Yes	Yes	Yes
Child age group	0–10	0–18	0–18	0–18
Mean of activity (min/day), single parent	5.32	35.65	17.14	68.54
Mean of activity (min/day), couple parents	7.35	42.23	19.63	129.58
R ²	0.11	0.07	0.21	0.34
N	1,434	3,245	3,245	3,245

Note: OLS estimates of differences in parental time investments. Model (A) includes the group indicator, which equals one if the child is from a single parent household, and the baseline set of controls. Model (B) additionally includes the parental full-time equivalent (FTE) as an explanatory variable. The dependent variable is the log of daily minutes spent on the respective childcare activity, defined as ln(minutes + 1), measured at the child level. “Reading to child” is restricted to children aged 0–6, as this activity is only developmentally relevant in early childhood; all other activities cover children and adolescents aged 0–18. All regressions include child age fixed effects. Baseline controls are the child’s gender, the number of children in the household, residence in East versus West Germany, survey month, and whether the child attends daycare (Kita). Robust standard errors are reported in parentheses. All regressions are weighted by household weights. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Source: German Time-Use Survey (2022).

Table C10: Single Parents: OLS estimates of financial investments of both parents with interactions by poverty risk and parental education

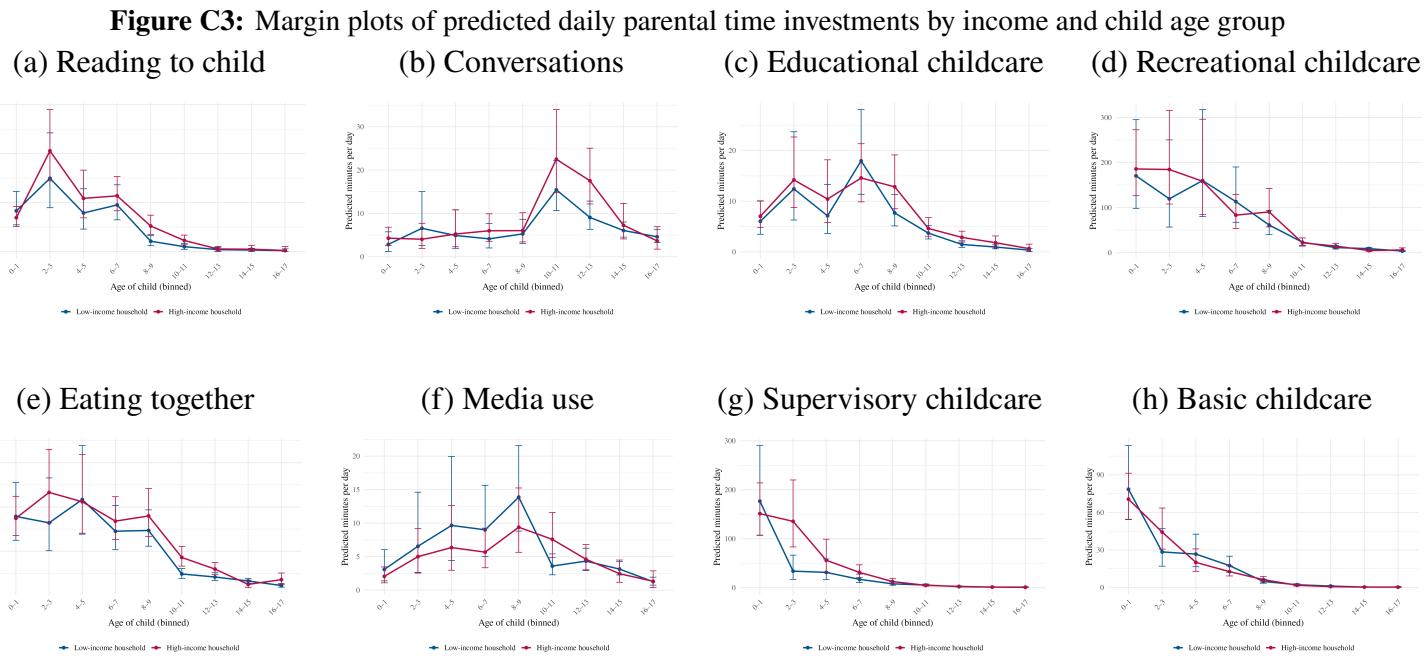
	Private Tutoring		Extracurricular Lessons		After-school care	
	(1) Poverty	(2) Low educ.	(1) Poverty	(2) Low educ.	(1) Poverty	(2) Low educ.
<i>Single parent and risk of poverty</i>						
Single parent	-0.02 (0.02)		-0.18*** (0.04)		0.16*** (0.05)	
Household at risk of poverty	-0.10*** (0.02)		-0.71*** (0.05)		-0.45*** (0.06)	
Single × At risk of poverty	-0.04 (0.04)		0.29*** (0.07)		-0.21** (0.09)	
<i>Single parent and low parental education</i>						
Single parent	-0.01 (0.03)		-0.05 (0.06)		0.06 (0.07)	
Low parental education	-0.03** (0.02)		-0.65*** (0.03)		-0.22*** (0.03)	
Single × Low parental education	-0.07** (0.04)		-0.11 (0.07)		-0.08 (0.09)	
Controls and child age FE						
Income as control	No	Yes	No	Yes	No	Yes
Observations	12718	12718	12718	12718	7406	7406
R ²	0.036	0.034	0.052	0.096	0.124	0.112

Note: OLS estimates of differences in parental financial investments by family structure, including interaction terms with indicators for poverty risk and low parental education. The dependent variable is the log of weekly financial investments in the respective category, defined as $\ln(\text{spending} (=C) + 1)$, measured at the child level. All regressions are weighted using household sampling weights and include child age fixed effects. Baseline controls are the child's gender, the number of children in the household, residence in East versus West Germany, federal state, and the survey quarter. Robust standard errors are reported in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Source: German Income and Expenditure Survey (2022).

Table C11: Subgroup of single parents: OLS estimates of differences in time investment by low education and poverty risk

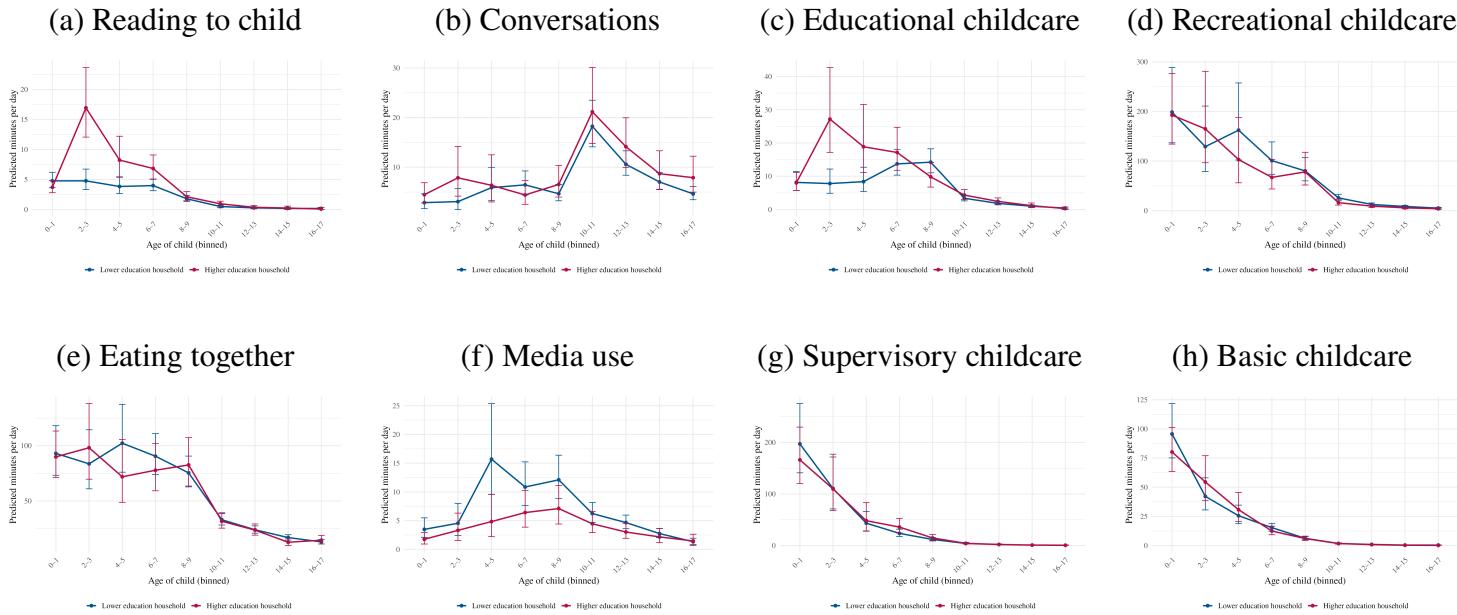
	Conversations	Reading to child	Educational childcare	Recreational childcare
Risk of poverty	-0.05 (0.17)	-0.14 (0.10)	-0.17 (0.15)	-0.19 (0.16)
R ²	0.11	0.33	0.23	0.34
N	683	683	683	683
Low parental education	-0.26 (0.16)	-0.11 (0.10)	-0.07 (0.13)	0.20 (0.15)
R ²	0.11	0.33	0.23	0.34
N	683	683	683	683

Note: Subgroup analysis of single parents. The data used in this analysis include only single mothers ($N = 683$). OLS estimates capture differences in parental time investments by poverty risk and low parental education. The dependent variable is the log of weekly time investments in the respective category, defined as $\ln(\text{minutes} + 1)$, measured at the child level. All regressions are weighted using household sampling weights and include child age fixed effects. Baseline controls are the child's gender, the number of children in the household, residence in East versus West Germany, federal state, and the survey quarter. Robust standard errors are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.
Source: German Time-Use Survey (2022).



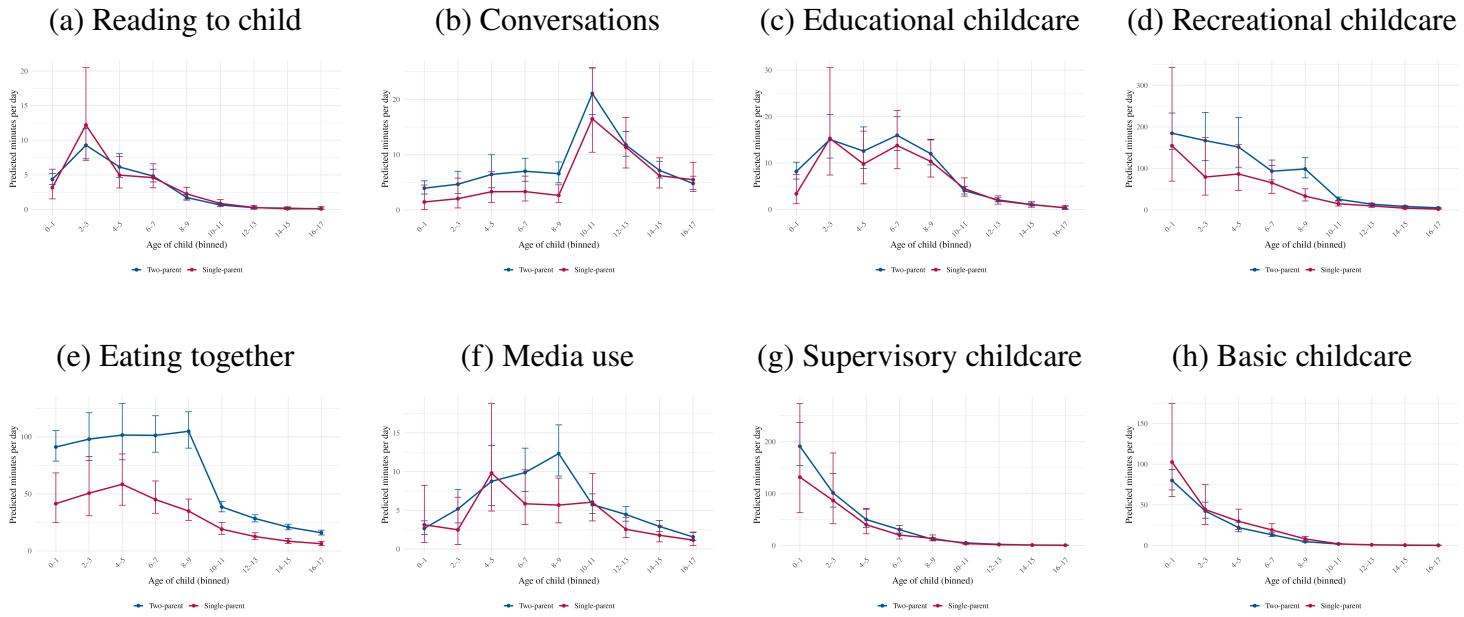
Note: Margin plot showing predicted minutes per day spent on reading to a child by household income across child age bins. Predictions are based on weighted linear regression models including an interaction between income group and child age category. Baseline controls are included. Predicted values are evaluated at the sample means of all control variables. Vertical bars indicate 95% confidence intervals based on robust standard errors. *Source:* German Time-Use Survey (2022).

Figure C4: Margin plots of predicted daily parental time investments by parental education and child age group



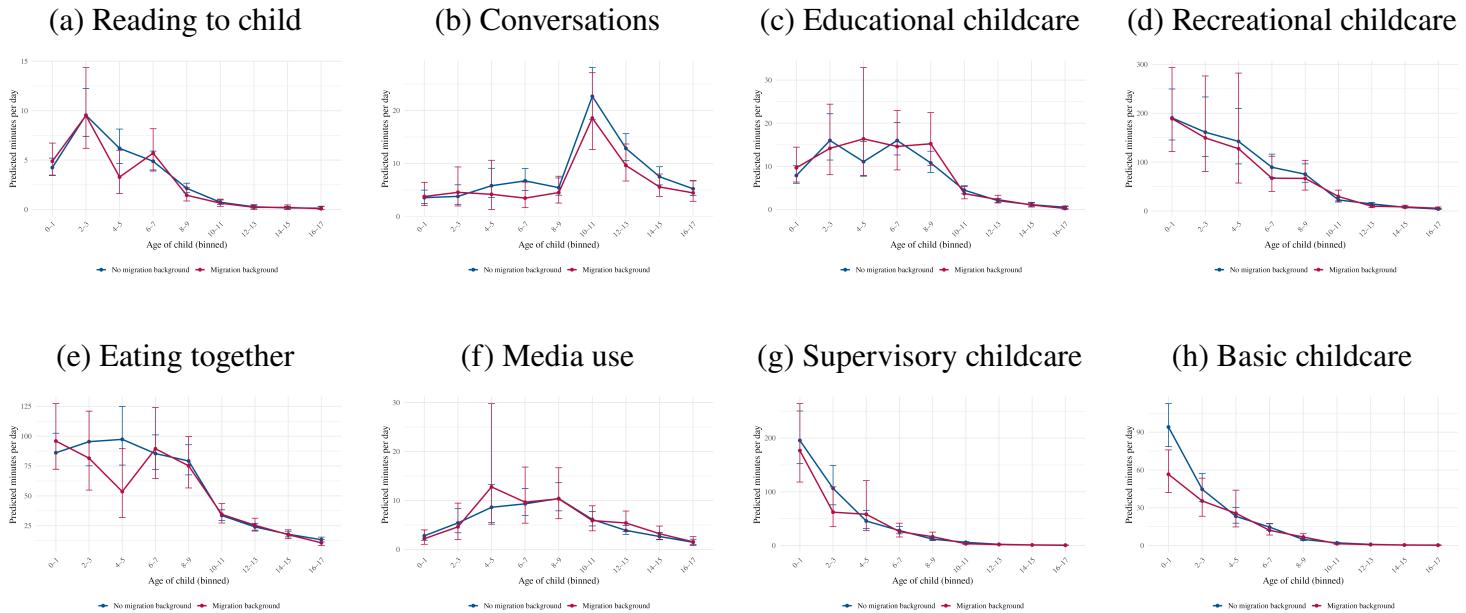
Note: Margin plot showing predicted minutes per day spent on reading to a child by parental education across child age bins. Predictions are based on weighted linear regression models including an interaction between parental education and child age category. Baseline controls are included. Predicted values are evaluated at the sample means of all control variables. Vertical bars indicate 95% confidence intervals based on robust standard errors. *Source:* German Time-Use Survey (2022).

Figure C5: Margin plots of predicted daily parental time investments by single parent and child age group



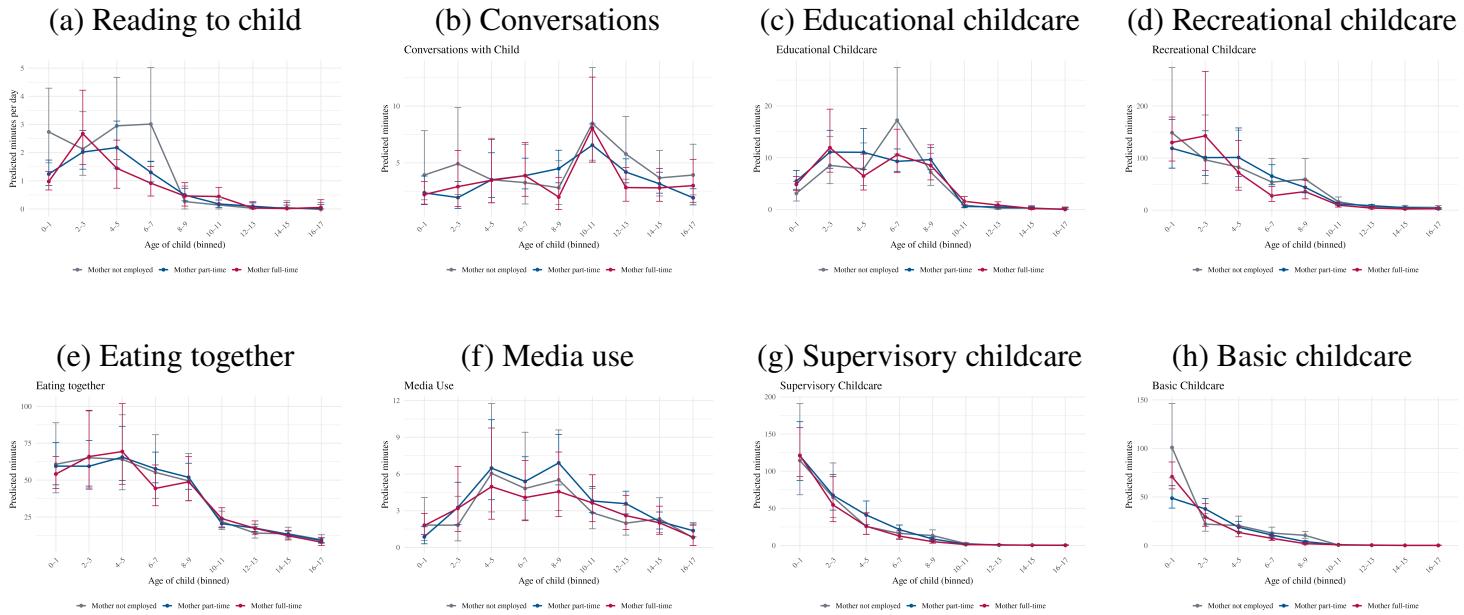
Note: Margin plot showing predicted minutes per day spent on reading to a child by family structure across child age bins. Predictions are based on weighted linear regression models including an interaction between a single parent indicator and child age category. Baseline controls are included. Predicted values are evaluated at the sample means of all control variables. Vertical bars indicate 95% confidence intervals based on robust standard errors. *Source:* German Time-Use Survey (2022).

Figure C6: Margin plots of predicted daily parental time investments by migration background and child age group



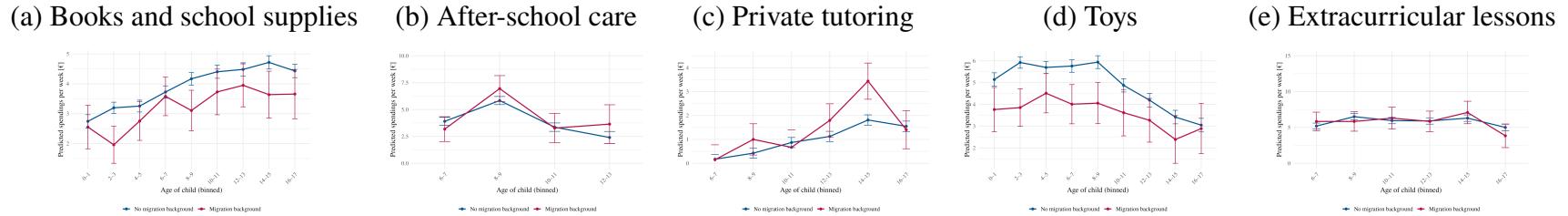
Note: Margin plot showing predicted minutes per day spent on reading to a child by migration background across child age bins. Predictions are based on weighted linear regression models including an interaction between a migration background indicator and child age category. Baseline controls are included. Predicted values are evaluated at the sample means of all control variables. Vertical bars indicate 95% confidence intervals based on robust standard errors. *Source:* German Time-Use Survey (2022).

Figure C7: Margin plots of predicted daily maternal time investments by maternal employment and child age group



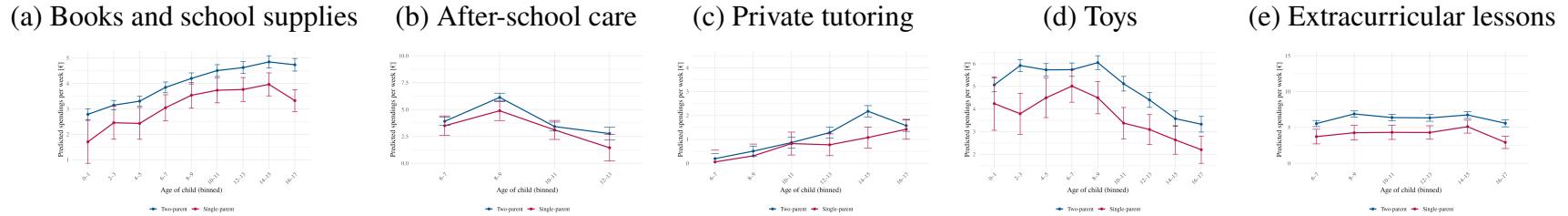
Note: Margin plots showing predicted minutes per day by maternal employment across child age bins. The analytical sample includes only maternal time investments. Predictions are based on weighted linear regression models including an interaction between maternal employment and child age category. Baseline controls are included. Predicted values are evaluated at the sample means of all control variables. Vertical bars indicate 95% confidence intervals based on robust standard errors. *Source:* German Time-Use Survey (2022).

Figure C8: Margin plots of predicted daily parental financial investments by migration background and child age group



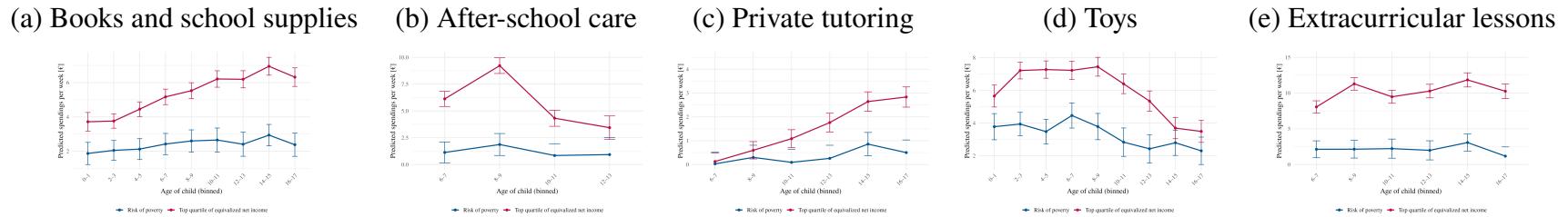
Note: Margin plot showing predicted weekly expenditures (€) on different parental investments by parental migration background across child age bins. Predictions come from weighted linear regression models with an interaction between a indicator for parental migration background and the child's age category. All models include baseline controls; predictions are evaluated at the sample means of these controls. Vertical bars denote 95% confidence intervals. *Source:* German Income and Expenditure Survey (2018)

Figure C9: Margin plots of predicted daily parental financial investments by single parent and child age group



Note: Margin plot showing predicted weekly expenditures (€) on different parental investments by family structure across child age bins. Predictions come from weighted linear regression models with an interaction between a indicator for single parenthood and the child's age category. All models include baseline controls; predictions are evaluated at the sample means of these controls. Vertical bars denote 95% confidence intervals. *Source:* German Income and Expenditure Survey (2018)

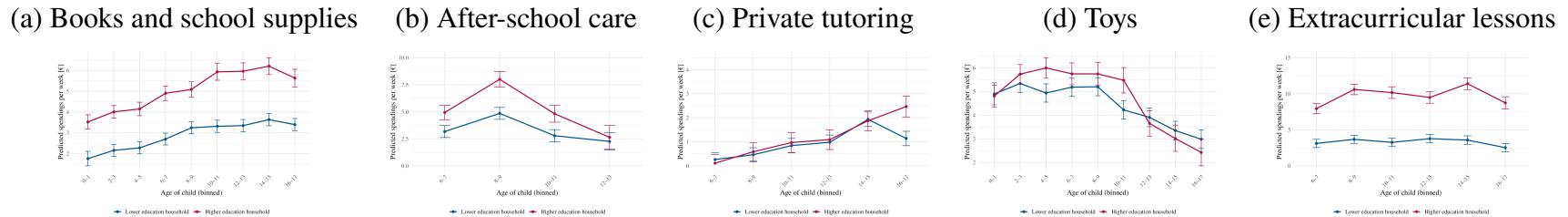
Figure C10: Margin plots of predicted daily parental financial investments by income and child age group



Note: Margin plot showing predicted weekly expenditures (€) on private tutoring by income across child age bins. Predictions come from weighted linear regression models with an interaction between income variable and the child's age category. All models include baseline controls; predictions are evaluated at the sample means of these controls. Vertical bars denote 95% confidence intervals. Source: German Income and Expenditure Survey (2018)

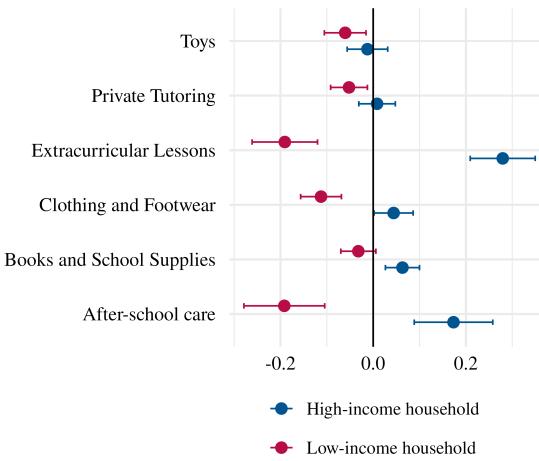
Figure C11: Margin plots of predicted daily parental financial investments by parental education and child age group

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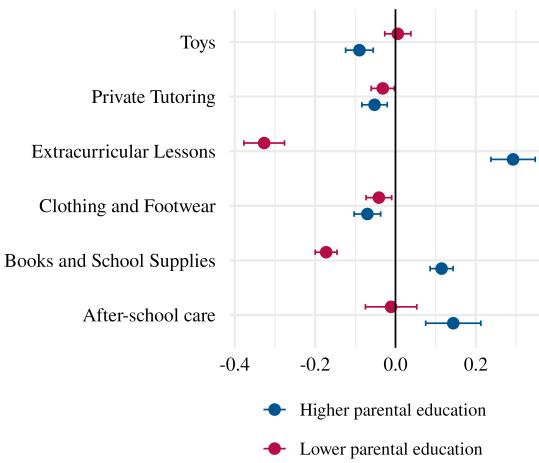
Note: Margin plot showing predicted weekly expenditures (€) on private tutoring by parental education across child age bins. Predictions come from weighted linear regression models with an interaction between a parental education indicator and the child's age category. All models include baseline controls; predictions are evaluated at the sample means of these controls. Vertical bars denote 95% confidence intervals. Source: German Income and Expenditure Survey (2018)

Figure C12: Income level: estimated differences across developmentally enriching and complementary financial investments (log-transformed Euros)



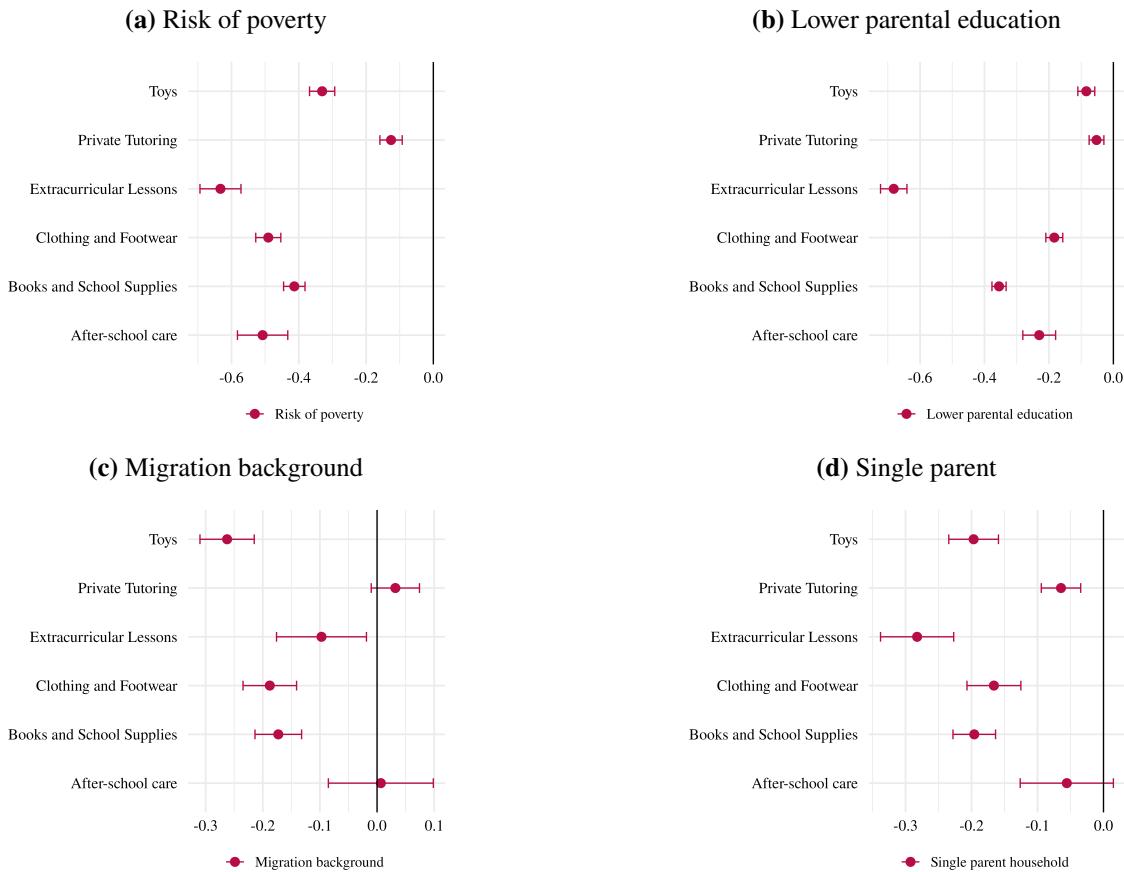
Note: Coefficient estimates of differences in parental financial investments by income group. Each point shows a weighted OLS estimate from a separate regression where the dependent variable is $\ln(\text{weekly spending (€)} + 1)$, measured on child level. Controls include child age fixed effects, baseline covariates and net household equivalence income. 95% confidence intervals shown.
Source: German Income and Expenditure Survey (2018)

Figure C13: Lower and high educated parents: estimated differences across developmentally enriching and complementary financial investments (log-transformed Euros)



Note: Coefficient estimates of differences in parental financial investments by lower parental education (neither parent holds a tertiary degree) and high education (both hold a tertiary degree). Each point shows a weighted OLS estimate from a separate regression where the dependent variable is $\ln(\text{weekly spending (€)} + 1)$, measured on child level. Controls include child age fixed effects, baseline covariates and net household equivalence income. 95% confidence intervals shown.
Source: German Income and Expenditure Survey (2018)

Figure C14: Estimated differences across developmentally enriching and complementary financial investments (log-transformed Euros), not controlling for net equivalence income



Note: Coefficient estimates of differences in parental financial investments by SES and sociodemographic group. Each point shows a weighted OLS estimate from a separate regression where the dependent variable is $\ln(\text{weekly spending} (\text{€}) + 1)$, measured on child level. Controls include child age fixed effects and baseline covariates. **Net equivalence household equivalence income is not included as control variable.** 95% confidence intervals shown. *Source:* German Income and Expenditure Survey (2018)

D Robustness

Sample restrictions

Table D1: Families with migration background: OLS estimates of differences in time investments of fathers

	Reading to child	Conversations	Educational childcare	Recreational childcare
Migration background	-0.07 (0.06)	-0.05 (0.06)	-0.06 (0.04)	0.03 (0.06)
Baseline controls & Child age FE	Yes	Yes	Yes	Yes
Child age group	0–10	0–18	0–18	0–18
Mean of activity (min/day), migration background	2.31	18.07	6.04	62.15
Mean of activity (min/day), no migration background	2.55	22.04	7.12	68.10
R ²	0.06	0.04	0.11	0.25
N	1,114	2,611	2,611	2,611

Note: OLS estimates of differences in paternal time investments. The group indicator equals one if the child lives in a family where at least one parent has migration background. The dependent variable is the log of daily minutes spent on the respective childcare activity, defined as $\ln(\text{minutes} + 1)$, measured at the child level. “Reading to child” is restricted to children aged 0–6, as this activity is only developmentally relevant in early childhood; all other activities cover children and adolescents aged 0–18. All regressions include child age fixed effects. Baseline controls are the child’s gender, the number of children in the household, residence in East versus West Germany, survey month, and whether the child attends daycare (Kita). Robust standard errors are reported in parentheses. All regressions are weighted by household weights. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Source: German Time-Use Survey (2022).

Table D2: Families at risk of poverty: OLS estimates of differences in time investments of fathers

	Reading to child	Conversations	Educational childcare	Recreational childcare
Risk of poverty	0.03 (0.17)	-0.01 (0.15)	-0.12 (0.09)	-0.06 (0.16)
Baseline controls & Child age FE	Yes	Yes	Yes	Yes
Child age group	0–10	0–18	0–18	0–18
Mean of activity (min/day), risk of poverty	1.67	19.14	4.40	57.78
Mean of activity (min/day), no risk of poverty	2.54	21.34	6.98	67.64
R ²	0.06	0.04	0.11	0.25
N	1,114	2,611	2,611	2,611

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Note: OLS estimates of differences in paternal time investments. The group indicator equals one if the child lives in a family at risk of poverty. The dependent variable is the log of daily minutes spent on the respective childcare activity, defined as ln(minutes + 1), measured at the child level. “Reading to child” is restricted to children aged 0–6, as this activity is only developmentally relevant in early childhood; all other activities cover children and adolescents aged 0–18. All regressions include child age fixed effects. Baseline controls are the child’s gender, the number of children in the household, residence in East versus West Germany, survey month, and whether the child attends daycare (Kita). Robust standard errors are reported in parentheses. All regressions are weighted by household weights. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Source: German Time-Use Survey (2022).

Table D3: Lower-educated parents: OLS estimates of differences in time investments of fathers

	Reading to child	Conversations	Educational childcare	Recreational childcare
Lower parental education	-0.37*** (0.08)	-0.05 (0.08)	-0.25*** (0.05)	0.08 (0.08)
Baseline controls & Child age FE	Yes	Yes	Yes	Yes
Child age group	0–10	0–18	0–18	0–18
Mean of activity (min/day), lower educated	1.47	21.34	5.25	64.63
Mean of activity (min/day), lot lower educated	3.52	20.95	8.34	69.06
R ²	0.08	0.04	0.12	0.25
N	1,114	2,611	2,611	2,611

Note: OLS estimates of differences in paternal time investments. The group indicator equals one if neither parent holds a tertiary degree. The dependent variable is the log of daily minutes spent on the respective childcare activity, defined as ln(minutes + 1), measured at the child level. “Reading to child” is restricted to children aged 0–6, as this activity is only developmentally relevant in early childhood; all other activities cover children and adolescents aged 0–18. All regressions include child age fixed effects. Baseline controls are the child’s gender, the number of children in the household, residence in East versus West Germany, survey month, and whether the child attends daycare (Kita). Robust standard errors are reported in parentheses. All regressions are weighted by household weights. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Source: German Time-Use Survey (2022).

Table D4: One-child households: OLS estimates of differences in parental financial investments

	Private Tutoring				Extracurricular Lessons				After-school care			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Single parent	-0.08** (0.03)				-0.35*** (0.06)				-0.03 (0.08)			
Migration background	0.14 (0.09)				-0.06 (0.13)				0.09 (0.16)			
Risk of poverty	-0.16*** (0.03)				-0.56*** (0.07)				-0.55*** (0.08)			
Lower parental education	-0.03 (0.03)				-0.72*** (0.06)				-0.11 (0.07)			
Baseline controls and Child age FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean spending (€/week), group variable = 1	1.007	2.455	0.389	1.310	3.904	6.946	2.383	3.419	11.084	16.545	5.366	13.297
Mean spending (€/week), group variable = 0	1.432	1.208	1.486	1.230	7.053	5.841	6.731	9.325	20.021	18.301	20.586	22.088
R ²	0.042	0.041	0.047	0.040	0.041	0.024	0.052	0.099	0.184	0.184	0.210	0.186
N	2895	2895	2895	2895	2895	2895	2895	2895	1435	1435	1435	1435

Note: OLS estimates of differences in parental financial investments, restricted to one-child households. The dependent variable is the log of weekly financial investments in the respective category, defined as $\ln(\text{spending} (\text{€}) + 1)$, measured at the child level. All regressions are weighted using household sampling weights and include child age fixed effects. Baseline controls are the child's gender, residence in East versus West Germany, federal state, the number of children in the household, and the survey quarter. Robust standard errors are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Source: German Time-Use Survey (2022).

Table D5: One-child households (controlling for income): OLS estimates of differences in parental financial investments

	Private Tutoring				Extracurricular Lessons				After-school care			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Single parent	-0.01 (0.04)				0.05 (0.06)				0.19* (0.08)			
Migration background	0.15 (0.09)				0.12 (0.12)				0.12 (0.16)			
Risk of poverty	-0.06 (0.05)				0.20* (0.09)				-0.40*** (0.11)			
Lower parental education	0.03 (0.03)				-0.48*** (0.06)				-0.04 (0.08)			
Baseline controls and Child age FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mean spending (€/week), group variable = 1	1.007	2.455	0.389	1.310	3.904	6.946	2.383	3.419	11.084	16.545	5.366	13.297
Mean spending (€/week), group variable = 0	1.432	1.208	1.486	1.230	7.053	5.841	6.731	9.325	20.021	18.301	20.586	22.088
R ²	0.051	0.053	0.051	0.051	0.121	0.121	0.123	0.150	0.208	0.205	0.213	0.205
N	2895	2895	2895	2895	2895	2895	2895	2895	1435	1435	1435	1435

Note: OLS estimates of differences in parental financial investments, restricted to one-child households. The dependent variable is the log of weekly financial investments in the respective category, defined as $\ln(\text{spending} (\text{€}) + 1)$, measured at the child level. All regressions are weighted using household sampling weights and include child age fixed effects. Baseline controls are the child's gender, residence in East versus West Germany, federal state, and the survey quarter. Model (B) additionally includes equivalized net household income (OECD scale) as an explanatory variable. Robust standard errors are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Source: German Time-Use Survey (2022).

Table D6: One-child households: OLS estimates of differences in parental time investments

	Conversations				Reading to child				Educational childcare				Recreational childcare					
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)		
Lower parental education	-0.09 (0.11)				-0.21* (0.12)				-0.26** (0.10)				-0.08 (0.10)					
Risk of poverty		-0.01 (0.19)				0.27 (0.20)				0.11 (0.16)				-0.13 (0.15)				
Migration background			0.02 (0.09)				-0.09 (0.10)				-0.05 (0.08)				-0.02 (0.08)			
Single Parent				-0.29** (0.12)				0.17 (0.13)				-0.04 (0.10)				-0.49*** (0.11)		
Child age group	0-18	0-66	0-18	0-18	0-18	0-6	0-18	0-18	0-18	0-6	0-18	0-18	0-18	0-6	0-18	0-18		
Controls and child age FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
R ²	0.07	0.07	0.07	0.07	0.09	0.09	0.09	0.09	0.25	0.25	0.25	0.25	0.41	0.41	0.41	0.42		
N	1466	1466	1466	1466	921	921	921	921	1466	1466	1466	1466	1466	1466	1466	1466		

Note: OLS estimates of differences in parental time investments, restricted to one-child households. The dependent variable is the log of daily minutes spent on the respective childcare activity, defined as $\ln(\text{minutes} + 1)$, measured at the child level. “Reading to child” is restricted to children aged 0–6, as this activity is only developmentally relevant in early childhood; all other activities cover children and adolescents aged 0–18. All regressions include child age fixed effects. Baseline controls are the child’s gender, residence in East versus West Germany, survey month, and whether the child attends daycare (Kita). Robust standard errors are reported in parentheses. All regressions are weighted by household weights. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Source: German Time-Use Survey (2022).

Functional form robustness

Table D7: Absolute values: OLS estimates of differences in parental financial investments (euros per week)

	Private Tutoring				Extracurricular Lessons				After-school care			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Single parent	-0.37*** (0.11)				-2.14*** (0.22)				-0.78** (0.29)			
Migration background		0.41 (0.30)				0.00 (0.43)				0.24 (0.41)		
Risk of poverty			-0.76*** (0.09)				-4.10*** (0.20)				-3.15*** (0.23)	
Lower parental education				-0.28** (0.10)				-4.84*** (0.19)				-1.32*** (0.21)
Baseline controls and Child age FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.02	0.02	0.02	0.02	0.02	0.01	0.03	0.07	0.06	0.06	0.08	0.07
N	12718	12718	12718	12718	12718	12718	12718	12718	7406	7406	7406	7406

Note: OLS estimates of differences in parental financial investments across four socioeconomic groups. The group indicator equals one if the child lives in a household with a migration background, low parental education, is at risk of poverty, or lives with a single parent. The dependent variable is the weekly financial investments in the respective category, measured at the child level. All regressions are weighted using household sampling weights and include child age fixed effects. Baseline controls are the child's gender, the number of children in the household, residence in East versus West Germany, federal state, and the survey quarter. Robust standard errors are reported in parentheses. The results align with the main log-based models and confirm that the main conclusions are not sensitive to the functional form of the dependent variable. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Source: German Time-Use Survey (2022).

Table D8: Absolute values: OLS estimates of differences in parental financial investments, controlling for income (euros per week)

	Private Tutoring				Extracurricular Lessons				After-school care			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Single parent	-0.02 (0.13)				0.52* (0.23)				0.77** (0.30)			
Migration background		0.54 (0.30)				0.98* (0.41)				0.77 (0.40)		
Risk of poverty			-0.16 (0.13)				1.24*** (0.32)				-0.80* (0.35)	
Lower parental education				0.02 (0.10)				-3.17*** (0.19)				-0.16 (0.23)
Baseline controls and Child age FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.03	0.03	0.03	0.03	0.09	0.09	0.09	0.11	0.09	0.09	0.09	0.09
N	12714	12714	12714	12714	12714	12714	12714	12714	7404	7404	7404	7404

Note: OLS estimates of differences in parental financial investments across four socioeconomic groups. The group indicator equals one if the child lives in a household with a migration background, low parental education, is at risk of poverty, or lives with a single parent. The dependent variable is the weekly financial investments in the respective category, measured at the child level. The model additionally includes equivalized net household income (OECD scale) as an control variable. All regressions are weighted using household sampling weights and include child age fixed effects. Baseline controls are the child's gender, the number of children in the household, residence in East versus West Germany, federal state, and the survey quarter. Robust standard errors are reported in parentheses. The results align with the main log-based models and confirm that the main conclusions are not sensitive to the functional form of the dependent variable. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Source: German Time-Use Survey (2022).

Table D9: Absolute values: OLS estimates of differences in parental time investments (minutes per day)

	Conversations				Reading to child				Educational childcare				Recreational childcare				
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	
Lower parental education	-0.86 (2.80)					-3.28*** (1.10)				-1.03 (1.21)				13.66*** (4.91)			
Risk of poverty	-3.99 (3.83)					0.37 (1.77)				-0.94 (1.80)				-19.44*** (6.39)			
Migration background	-0.96 (2.47)					-0.25 (0.98)				-1.06 (0.91)				-1.25 (3.72)			
Single Parent	-7.39** (3.12)					-2.07** (1.04)				-2.59* (1.37)				-55.88*** (4.46)			
Child age group	0-18	0-66	0-18	0-18	0-18	0-6	0-18	0-18	0-18	0-6	0-18	0-18	0-18	0-6	0-18	0-18	
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Child age FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.10	0.10	0.10	0.10	0.28	0.28	0.28	0.30	
N	3484	3484	3484	3484	1511	1511	1511	1511	3484	3484	3484	3484	3484	3484	3484	3484	3484

Note: OLS estimates of differences in parental time investments across four socioeconomic groups. The group indicator equals one if the child lives in a household with a migration background, low parental education, is at risk of poverty, or lives with a single parent. The dependent variable measures the daily minutes spent on the respective childcare activity, capturing absolute gaps between disadvantaged and reference groups at the child level. “Reading to child” is restricted to children aged 0–6, as this activity is only developmentally relevant in early childhood; all other activities cover children and adolescents aged 0–18. All regressions include child age fixed effects. Baseline controls are the child’s gender, the number of children in the household, residence in East versus West Germany, survey month, and whether the child attends daycare (Kita). Robust standard errors are reported in parentheses. All regressions are weighted by household weights. Results closely mirror those in the log-specification, confirming robustness to functional form. Only minor changes in statistical significance appear, with single parents spending about two minutes less on reading and 2.5 minutes less on educational childcare per day (weakly significant). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Source: German Time-Use Survey (2022).

Alternative Definitions

Table D10: Income quartiles: OLS estimates of differences in parental time investments

	Conversations	Reading to child	Educational childcare	Recreational childcare
Income Q2 (vs Q1)	0.19*	0.04	0.12	0.02
	(0.10)	(0.12)	(0.08)	(0.10)
Income Q3 (vs Q1)	0.24**	0.11	0.14	0.03
	(0.10)	(0.13)	(0.08)	(0.10)
Income Q4 (vs Q1)	0.27***	0.07	0.17**	0.04
	(0.10)	(0.12)	(0.08)	(0.10)
Baseline controls	Yes	Yes	Yes	Yes
Child age FE	Yes	Yes	Yes	Yes
R ²	0.06	0.12	0.21	0.32
N	3484	1511	3484	3484

Note: OLS estimates of differences in parental time investments across income quartiles. The model includes dummy indicators for the 2nd, 3rd, and 4th quartile of equivalized net household income, with the 1st quartile (Q1) serving as the reference group. The dependent variable is the log of daily minutes spent on each childcare activity, measured at the child level. Coefficients capture conditional mean differences in parental time investments relative to the lowest income quartile. All regressions are weighted using household sampling weights and include baseline controls (child's gender, number of children in the household, East/West Germany indicator, survey month, and daycare attendance) as well as child age fixed effects. Standard errors are heteroskedasticity-robust. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Source: German Time-Use Survey (2022).

Table D11: Income quartiles: OLS estimates of differences in parental financial investments

	Private Tutoring	Extracurricular Lessons	After-school care
Net equivalized income: Q2 (vs Q1)	0.07*** (0.02)	0.32*** (0.03)	0.23*** (0.04)
Net equivalized income: Q3 (vs Q1)	0.14*** (0.02)	0.62*** (0.03)	0.37*** (0.04)
Net equivalized income: Q4 (vs Q1)	0.17*** (0.02)	1.03*** (0.04)	0.59*** (0.04)
Baseline controls and Child age FE	Yes	Yes	Yes
R ²	0.041	0.111	0.135
N	12,718	12,718	7,406

Note: OLS estimates of differences in parental financial investments across income quartiles. The model includes dummy indicators for the 2nd, 3rd, and 4th quartile of equivalized net household income (OECD-modified scale), with the 1st quartile (Q1) serving as the reference group. The dependent variable is the log of weekly parental spending per child (in euros) on private tutoring, extracurricular lessons, and after-school care. Coefficients capture conditional mean differences in expenditures relative to the lowest income quartile. All regressions are weighted using household sampling weights and include baseline controls (child's gender, number of children in the household, East/West Germany indicator, federal state, and survey quarter) as well as child age fixed effects. Robust standard errors are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.
Source: German Time-Use Survey (2022).

Table D12: Higher parental education: OLS estimates of differences in parental time investments

	Conversations	Reading to child	Educational childcare	Recreational childcare
High education	0.21*** (0.08)	0.28*** (0.09)	0.11* (0.06)	-0.25*** (0.07)
Baseline controls	Yes	Yes	Yes	Yes
Child age FE	Yes	Yes	Yes	Yes
R ²	0.06	0.12	0.21	0.32
N	3,484	1,511	3,484	3,484

Note: OLS estimates of differences in parental time investments by high parental education. The group indicator equals one if both parents hold a university degree or an equivalent tertiary qualification. The dependent variable is the log of daily minutes spent on each childcare activity, measured at the child level. Coefficients indicate percentage differences in received parental time between children of highly educated and less-educated parents, conditional on controls. All models are estimated using household sampling weights and include baseline covariates (child's gender, number of children, East/West indicator, survey month, and daycare attendance) and child age fixed effects. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.
Source: German Time-Use Survey (2022).

Table D13: Higher parental education: OLS estimates of differences in parental financial investments

	Private Tutoring		Extracurricular Lessons		After-school care	
	(A)	(B)	(A)	(B)	(A)	(B)
High parental education	0.009 (0.015)	-0.034** (0.015)	0.681*** (0.029)	0.478*** (0.029)	0.278*** (0.033)	0.151*** (0.033)
Equ. net household income			0.138*** (0.014)		0.642*** (0.030)	0.380*** (0.033)
Baseline controls & Child age FE	Yes	Yes	Yes	Yes	Yes	Yes
Mean spending (€/week), group variable = 1		1.05		9.71		18.69
Mean spending (€/week), group variable = 0		0.99		4.54		10.73
R ²	0.0317	0.0404	0.0782	0.1338	0.1134	0.1350
N	12,718	12,714	12,718	12,714	7,406	7,404

Note: OLS estimates of differences in parental financial investments by higher parental education. The group indicator equals one if both parents hold a university degree or an equivalent tertiary qualification. The dependent variable is the log of weekly per-child expenditures (in euros) on private tutoring, extracurricular lessons, and after-school care. Column (B) additionally includes equivalized net household income to examine whether observed differences operate through income disparities. All regressions are weighted using household sampling weights and include baseline controls (child's gender, number of children in the household, East/West Germany indicator, federal state, and survey quarter) as well as child age fixed effects. Robust standard errors are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Source: German Time-Use Survey (2022).

Multiple Disadvantage Specification

Table D14: Multiple disadvantage: OLS estimates of differences in parental time investments

	Conversations	Reading to child	Educational childcare	Recreational childcare
Risk of poverty	-0.08 (0.12)	0.11 (0.15)	-0.13 (0.10)	-0.19 (0.12)
Single parent	-0.26*** (0.09)	0.07 (0.11)	-0.03 (0.07)	-0.56*** (0.09)
Migration background	-0.12** (0.06)	-0.15** (0.07)	-0.10** (0.05)	-0.04 (0.06)
Lower parental education	-0.12* (0.07)	-0.29*** (0.09)	-0.15** (0.06)	0.22*** (0.07)
Baseline controls	Yes	Yes	Yes	Yes
Child age FE	Yes	Yes	Yes	Yes
R ²	0.07	0.13	0.22	0.33
N	3,484	1,511	3,484	3,484

Note: OLS estimates of differences in parental time investments, jointly estimated across all four socioeconomic dimensions. The specification includes dummy indicators for low parental education, migration background, single parenthood, and risk of poverty simultaneously, allowing the estimated coefficients to capture the partial association of each disadvantage with parental time investments while holding the others constant. The dependent variable is the log of daily minutes spent on the respective childcare activity, measured at the child level. All regressions are weighted using household sampling weights and include baseline controls (child's gender, number of children in the household, East/West Germany indicator, survey month, and daycare attendance) as well as child-age fixed effects. Coefficients represent conditional mean differences in parental time investments relative to the respective reference group. Robust (Huber–White) standard errors are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. *Source:* German Time-Use Survey (2022).

Table D15: Multiple disadvantage: OLS estimates of differences in parental financial investments

	Private tutoring	Extracurricular lessons	After-school care
Lower parental education	-0.03** (0.01)	-0.62*** (0.03)	-0.18*** (0.03)
Migration background	0.03 (0.03)	-0.12** (0.05)	0.05 (0.05)
Single parent	-0.02 (0.02)	-0.01 (0.03)	0.14*** (0.04)
Risk of poverty	-0.11*** (0.02)	-0.44*** (0.04)	-0.49*** (0.05)
Baseline controls and Child age FE	Yes	Yes	Yes
R ²	0.04	0.11	0.13
N	12718	12718	7406

Note: OLS estimates of differences in parental financial investments, estimated jointly across four disadvantage dimensions: low parental education, migration background, single parenthood, and risk of poverty. All dummy indicators are included in the same regression, so coefficients reflect the marginal association of each factor with child-level expenditures while controlling for the others. The dependent variable is the log of weekly per-child spending (in euros) on private tutoring, extracurricular lessons, and after-school care. Models include household sampling weights, baseline controls (child's gender, number of children in the household, East/West Germany indicator, federal state, and survey quarter), and child-age fixed effects. Reported coefficients therefore represent partial conditional differences in average spending, net of correlated socioeconomic characteristics. Heteroskedasticity-robust standard errors in parentheses.
 * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Source: German Time-Use Survey (2022).