# Parental commuting and child well-being in Germany 

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#### Abstract

The number of people commuting to work is increasing, including those who spend at least two hours travelling to and from work per day. In Germany, the group of these longdistance commuters comprises about 1.6 million people. To date, there has been little research on the possible consequences of long commuting times for family life and commuters' children. On the basis of a pooled data set from the German Family Panel pairfam, we examine the relationship between parental commuting, the parent-child relationship and child well-being, both from the parent's as well as the child's perspective while also distinguishing between mothers and fathers. Some results indicate that long. distance commuting is associated with a poorer parent-child relationship and ultimately with lower child well-being. However, the association is rather sporadic and substantively weak.


Key words: commuting, child well-being, parent-child relationship, parent vs. child perspective, structural equation modeling

## 1. Introduction

Commuting times are on the rise (Die Bundesregierung 2016; Wingerter 2014). Expectations of flexibility and mobility at work, greater uncertainties in the labor market with widespread fixed-term contracts making relocation a risky endeavour, and high housing prices forcing commuters to relocate further away from city centers have contributed to increasing mobility and long-distance commuting (Schneider \& Meil 2008; Urry 2012). These trends have been reinforced by women's increasing participation in the workforce (Blossfeld \& Hofmeister 2006), which makes it more difficult for dual-earner couples to both find suitable jobs in one location. Commuting is a daily activity that takes time, is costly, and causes stress (Rüger \& Schulze 2016; Schneider, Limmer, \& Ruckdeschel 2002). Commuting time is, as a rule, time without direct income compensation and often without the benefits of leisure time. It can have substantial adverse subjective well-being effects, particularly because of reduced free time. Previous findings show that lengthy commuting is associated with lower well-being (Stutzer \& Frey 2008), lower satisfaction with one's social contacts (Delmelle, Haslauer, \& Prinz 2013), lower life satisfaction (Brömmelhaus, Feldhaus, \& Schlegel 2019; Drobnič, Beham, \& Präg 2010; Ingenfeld, Wolbring, \& Bless 2019; Nie \& Sousa-Poza 2018; Pfaff 2014), and poorer health (Hoehner et al. 2012; Künn-Nelen 2016; Rüger \& Schulze 2016). It has also been associated with reduced sleeping time and less physical activity (Christian 2012; Pfeifer 2018) as well as with a higher perceived stress level (Gottholmseder et al. 2009; Rüger \&Schulze 2016). Lastly, long-distance commuting can be accompanied by an increased tension between work and home (Drobnič \& Guillén Rodríguez 2011). But commuting not only affects employees who commute to their work; it also has important consequences for the well-being of their families. Previous research has shown that longdistance commuting can affect partnership stability (Kley 2012, 2015; Kley \& Feldhaus 2018; Sandow 2014) and the perceived quality of a relationship (Feldhaus \& Schlegel 2013).

In this paper, we contribute to the literature by examining an aspect of commuting that has been largely neglected in sociological research: the impact of long-distance commuting on well-being of commuters' children. Only a handful of studies so far have examined the association between commuting and child well-being (Dunifon, Kalil, \& Bajracharya 2005; Li \& Pollmann-Schult 2016). The only study available for Germany shows a consistent association between commuting distance and the likelihood of having peer relationship problems, particularly if fathers commute 60 km or more each way (Li \& Pollmann-Schult 2016). Only fathers were examined in this study. In contrast, results from the USA are available for mothers only. A commute of 25 minutes or more is positively associated with the incidence of internalizing behavior problems among their children, for example being sad, withdrawn or feeling worthless. In addition, prosocial behavior decreases with mothers' long commutes (Dunifon, Kalil, \& Bajracharya 2005).

In this paper, we examine whether the long-distance commuting of a parent poses a risk to the well-being of the child, indicated by conduct problems and emotional difficulties. The mechanism behind this association is assumed to be the parent-child relationship. Previous studies have shown that parents' working conditions, such as shift work, can have a negative impact on the parent-child relationship and ultimately on the
well-being of the child itself (Crouter \& Bumpus 2001; Han \& Miller 2009; Tulk et al. 2016). Along the same lines, we assume that parental commuting time, as one aspect of work-related demands, can affect the parent-child relationship. Long commutes, which have been associated with more perceived stress, less sleep, fewer social contacts, poorer health, and lower life satisfaction, can thus also have negative effects on the parent-child relationship, which in turn is associated with behavioral and emotional difficulties in the child. In terms of methods, multiple structural equation models are estimated to analyze the connection between parents' commuting, the parent-child relationship, and the child's well-being, using data from the German Family Panel pairfam ${ }^{1}$ (Brüderl et al. 2018; Huinink et al. 2011).

## 2. Theoretical considerations

The amount of time a parent spends at home and his/her available resources, such as physical and mental energy, depend inter alia on how long this person spends commuting. Many highly mobile people feel stressed or exhausted (Gottholmseder et al. 2009; Schneider, Limmer, \& Ruckdeschel 2002; Stutzer \& Frey 2008). Because of the long commute they not only spend less time at home and with their children, but this time may also be of lesser quality.

Working parents are confronted with the double burden of reconciling work and family life. They face the challenge of meeting the demands of both domains with limited resources. The cumulative role expectations from both domains can lead to role strain and perceived difficulty in fulfilling role obligations (Goode 1960). Women in particular face this difficulty as they are still seen as primarily responsible for parenting. In addition to posing a challenge to reconciling family and career, long-distance commuting can be considered a demand in its own right (Voydanoff 2005). Commuting requires resources such as time and money, and depletes the energy of the commuter through physical and mental effort. The resources used to meet one specific demand are then not available for other activities (Greenhaus \& Beutell 1985). The time and energy spent on commuting is not available for family life. Commuting can thus make it more difficult to fulfill roles within the family, including the parental role. Therefore, commuting not only affects the commuters themselves, but also other people in their proximate environment, particularly their partner and children.

Long-distance commuting, for example, has been found to be associated with lower relationship stability (Kley 2012, 2015; Kley \& Feldhaus 2017; Sandow 2014). There are also crossover effects from mothers' commuting on fathers' satisfaction with family life (Brömmelhaus, Feldhaus, \& Schlegel 2019). Like the partner, the child is part of the commuter's immediate environment. According to ecological systems theory (Bronfenbrenner 1979), a child's environment plays a central role in its development. In Bronfenbrenner's human development model, the child is at the core of the model,

[^0]surrounded by actors with whom it interacts regularly, such as their parents. Proximal processes, such as regular and long-term interactions, are central to the child's development. Research on the effects of parents' working conditions on children has already shown that shift work can be accompanied by fewer meals with the mother or lower closeness with the father (Han \& Miller 2009). When parents commute over long distances, we expect that they have less time available to spend with their children, or they cannot give them as much attention as they would like to. The parent may have fewer opportunities to show how much he or she values the child and appreciates what the child does. Similarly, it is conceivable that the parent is tired or impatient because of the strain of commuting. This can lead to more parent-child conflicts. Overall, if a parent commutes, the result may be a worse parent-child relationship. Since the parent-child relationship is a central element for the child and its development (Bronfenbrenner 1979), the child's wellbeing may ultimately be reduced.

We expect a negative association between commuting time and the parent-child relationship. We assume that parents with long commuting times, compared to parents with short commuting times, less often show esteem for their children and have more conflicts with them (Hypothesis 1a). Knowing that a positive parent-child relationship is related to higher child well-being (Kuppens \& Ceulemans 2019), we assume that less parental esteem and more frequent parent-child conflicts are associated with more conduct problems and emotional symptoms of the child (Hypothesis 1b). In summary, we assume that, via the poorer parent-child relationship, long parental commuting times are associated with lower child well-being (Hypothesis 1c).

In addition, we expect differences according to parental gender: Mothers are exposed to more role strain due to their assumed primary responsibility in raising children (Wengler, Trappe, \& Schmitt 2008). Moreover, previous research on the consequences of long-distance commuting has found stronger and negative associations for mothers, for example for their health and well-being (Brömmelhaus, Feldhaus, \& Schlegel 2019; Collet \& Dauber 2010; Dickerson, Hole, \& Munford 2014; Feng \& Boyle 2014; Künn-Nelen 2016; Roberts, Hodgson, \& Dolan 2011; Rüger \& Schulze 2016; Sandow et al. 2014). It is thus expected that the association between long commutes, poorer relationship with the children and lower child well-being is stronger for commuting mothers than commuting fathers (Hypothesis 2).

## 3. Data and methods

### 3.1 Data

The analysis is based on data from the first nine waves of the "Panel Analysis of Intimate Relationships and Family Dynamics", pairfam (also called the German Family Panel), release 9.1.0 (Brüderl et al. 2018). The German Family Panel is a multidisciplinary study with annual interviews of German-speaking persons from three birth cohorts (1991-1993, 1981-1983, and 1971-1973). The long-term study contains rich information on partnerships and family dynamics, childbearing, parenting, child development and
intergenerational relationships. A detailed description of the study can be found in Huinink et al. (2011). A special feature of the panel is the multi-actor design: In addition to the initial respondent, his/her partner, child(ren) and parents were also interviewed. The interviews with the children are of particular relevance for this study since they provide the information for assessing child well-being and the parent-child relationship, not only from the parent's perspective but also from that of the child. This means that both respondents and their children can be included in the analysis. On the one hand, the parent evaluates the relationship with the child and the child's well-being, and on the other hand, the child evaluates the relationship with the parent and own well-being. The sample includes children between 8 and 15 years of age because the information on child well-being and the parent-child relationship is available from children of this age range. The child sample is somewhat larger than the parent sample because more than one child can be included per parent interviewed. Only households with couple relationships in which both partners and the child(ren) live in the same household are considered. In addition, the information on commuting time and the frequency of commuting for the respondent must be available.

The waves 5, 7, 8, and 9, covering the period 2012-2017, contain information on commuting for the respondent and his or her partner. The number of long-distance commuters per wave is currently not sufficient to perform longitudinal analyses. Therefore, the information from the four waves is pooled - thus, each person can be included up to four times in the sample - and cross-sectional analyses are performed. To control for possible clustering because of the pooling, robust estimators of standard errors are used. The final samples include 3,657 primary respondents and 4,229 children.

### 3.2 Measures

Commuting distance. In the German Family Panel, commuting is measured in minutes required for the one-way journey to work. We coded commuting time into three intervals and thus distinguish between short-distance commutes of 0-29 minutes, middle-distance commutes of $30-59$ minutes and long-distance commutes of 60 minutes and more. The choice of threshold values is based on existing research, such as the analysis of the German Census by the Federal Statistical Office (Statistisches Bundesamt 2017) and the study Job Mobilities and Family Lives in Europe (Rüger et al. 2011). Although commuting times are considered, we use the common term of commuting distance in this paper. The respondents also report the frequency of their commute. Only persons who commute daily or several times a week are included in the study. Weekly or fortnightly travel, or working at remote locations for longer periods of time is another form of job-related mobility associated with different requirements, a particular lifestyle and possibly other consequences for commuters and their families than those considered here.

Parent-child relationship. The parent-child relationship is measured by two indicators from the Network of Relationship Inventory (Furman \& Buhrmester 1985): esteem is included as a positive dimension and parent-child conflicts as a negative dimension of the parent-child relationship. Each indicator is assessed with two items (all items used for the indicators are reported in Table 2). The parent and the child indicated on a scale from (1) 'never' to (5) 'always' how frequently parental esteem and parent-child conflicts occur.

Child well-being. The extent of behavioral difficulties is included as an indicator of the child's well-being. Child conduct problems are considered an extrinsic problem behavior, emotional symptoms indicate an intrinsic problem behavior. Five items from the Strengths and Difficulties Questionnaire (SDQ; Goodman 1997; Woerner et al. 2002) are available for each indicator (see Table 2). One item per indicator was not used: Almost no children steal from home, school or elsewhere, so this item is extremely skewed. Furthermore, the item "often complains about headaches, stomach aches and sickness" represents physical discomfort and fits less well to the other items of the emotional symptoms, which all refer to psychological discomfort. These adjustments are supported by the fit indices for the quality of the measurement model, as described below. Each item was rated on a scale of (0) 'not true', (1) 'somewhat true' to (2) 'certainly true', by both parent and child.

Control variables. In order to reduce the risk of biased results, we control for variables that could play a role in the association between parental commuting and child well-being. These include the actual weekly working time of the parent in order to control for long absences from home due to work. As both mobility and parenting behavior can be related to educational attainment (Roubinov \& Boyce 2017), the educational level is included, measured according to the International Standard Classification of Education (ISCED). Since couple households are examined and both parents are central to the child's wellbeing, partner's employment status and his/her commuting time are also considered. Given the fact that parental time is limited, we control for the number of children, because siblings are competitors for parents' time, energy, and financial resources (Downey 2001). Finally, the gender of the respondent and the gender and age of the child are included. Previous findings indicate that women are more often confronted with household and job-related burdens (Brömmelhaus, Feldhaus, \& Schlegel 2019). In terms of children's characteristics, girls show more emotional problems and boys more conduct problems (Rothenberger et al. 2008). Also, the incidence of both emotional and conduct problems changes with the age of the children and adolescents (Becker et al. 2018; Rothenberger et al. 2008).

### 3.3 Analytical approach

The analysis is carried out using structural equation modeling (SEM). SEM consists of two parts, the measurement model and the structural model. The measurement model contains a factor analysis for the two latent constructs of conduct problems and emotional symptoms as well as for the two latent constructs of esteem and conflict. Each latent construct is measured by two to four manifest variables. In structural equation models, it is possible to make adjustments to the measurement model so that it best reflects the structure of the existing data. We removed one item from each of the conduct problems and emotional symptoms as described above. Furthermore, the error terms of the two items "nervous" and "many fears" are allowed to correlate (not shown in Figure 1). This was done because both items correlate much more strongly with each other than with other items. The fit indices indicate that the final measurement model is well adapted (parent perspective: RMSEA $=0.032, \mathrm{TLI}=0.965, \chi^{2}(\mathrm{df}=63)=304.403$; child perspective: RMSEA $\left.=0.040, \mathrm{TLI}=0.917, \chi^{2}(\mathrm{df}=63)=484.472\right)$. Here, we refer to quality measures that
more reliably indicate a misspecification (RMSEA instead of SRMR, TLI instead of CFI, see Reußner 2019). Only the TLI for the child sample is slightly below the recommended threshold (Hu \& Bentler 1999; Reußner 2019).

In a second step, the structural part of the model is added, which includes the assumed connections between parental commuting, the parent-child relationship and the child's well-being. For this purpose, a regression is calculated simultaneously from commuting to the latent indicators of the parent-child relationship and again from the latent indicators of the parent-child relationship to the latent indicators of the child's wellbeing. The direct path from the parent's commuting to the child's well-being is also included. This model was run both for the parental and for the child's evaluation of the parent-child relationship and the child's well-being. Lastly, as gender differences are expected, each analysis was additionally carried out separately according to the gender of the respondent.

Figure 1: Structural equation model


## 4. Results

### 4.1 Descriptive statistics

The distribution of commuting time is shown in Table 1. About 7.5 percent of working parents in our sample need one hour or more to get to work, which amounts to a commute of at least two hours daily or several times a week. This proportion is higher than in the German Census, where 5 percent of employees are long-distance commuters. The differences between the percentages for the German Census and pairfam can be attributed to the different samples. While one percent of all households in Germany are surveyed in the German Census, only working parents with children aged 8 to 15 are
included in our sample. Given the fact that the sample composition differs significantly, some differences in the commuting times are to be expected, but overall these differences are small.

Table 1: Commuting distance (measured in minutes) (in \%)

|  | German Family Panel $^{1}$ |  | German Census $^{2}$ |  |  |  |
| :--- | ---: | ---: | ---: | ---: | ---: | ---: |
|  | Total | Men | Women | Total | Men | Women |
| Short distance $(0-29 \mathrm{~min})$ | 67.91 | 59.41 | 73.14 | 72.09 | 69.03 | 75.42 |
| Middle distance $(30-59 \mathrm{~min})$ | 24.62 | 28.95 | 21.97 | 22.91 | 24.82 | 20.82 |
| Long distance $(60+\mathrm{min})$ | 7.46 | 11.64 | 4.90 | 5.00 | 6.14 | 3.76 |
|  | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |

${ }^{1}$ Source: pairfam, release 9.1.0, own calculations. The numbers for the German Family Panel refer to the parent sample in our study.
${ }^{2}$ Source: Statistisches Bundesamt 2017.
Table 2: Descriptive statistics of study population, parent and child perspective

|  | Min- <br> Max | Parent sample ( $\mathrm{N}=3,657$ ) |  | Child sample$(\mathrm{N}=4,229)$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Mean | SD | Mean | SD |
| Conduct problems |  |  |  |  |  |
| Child often loses temper | 0-2 | 0.52 | 0.63 | 0.52 | 0.63 |
| Child is generally well behaved | 0-2 | 0.56 | 0.58 | 0.59 | 0.54 |
| Child often fights with other children | 0-2 | 0.20 | 0.43 | 0.08 | 0.30 |
| Child often lies and cheats | 0-2 | 0.34 | 0.53 | 0.27 | 0.51 |
| Emotional symptoms |  |  |  |  |  |
| Child has many worries | 0-2 | 0.34 | 0.54 | 0.72 | 0.65 |
| Child is often unhappy, depressed or tearful | 0-2 | 0.19 | 0.43 | 0.31 | 0.52 |
| Child is nervous in new situations | 0-2 | 0.46 | 0.61 | 0.57 | 0.64 |
| Child has many fears, is easily scared | 0-2 | 0.35 | 0.56 | 0.44 | 0.60 |
| Parental esteem |  |  |  |  |  |
| Parent expresses recognition for what child does | 1-5 | 4.17 | 0.61 | 4.08 | 0.77 |
| Parent shows child that he/she appreciates him/her | 1-5 | 4.20 | 0.66 | 4.22 | 0.75 |
| Parent-child conflict |  |  |  |  |  |
| Parent and child are annoyed/angry with each other | 1-5 | 2.28 | 0.72 | 2.09 | 0.80 |
| Parent and child disagree and quarrel | 1-5 | 2.46 | 0.72 | 2.14 | 0.84 |
| Respondent |  |  |  |  |  |
| Short-distance commuter | 0-1 | 0.68 | 0.47 | 0.69 | 0.46 |
| Middle-distance commuter | 0-1 | 0.25 | 0.43 | 0.24 | 0.43 |
| Long-distance commuter | 0-1 | 0.07 | 0.26 | 0.07 | 0.26 |
| Women (ref.: men) | 0-1 | 0.62 | 0.49 | 0.63 | 0.48 |
| Working hours | 2-85 | 33.72 | 13.10 | 33.53 | 13.48 |
| Educational level | 1-8 | 5.38 | 1.62 | 5.27 | 1.63 |
| Partner |  |  |  |  |  |
| Employed (ref.: not employed) | 0-1 | 0.89 | 0.31 | 0.89 | 0.31 |
| Long-distance commuter (ref.: not long-distance commuter) | 0-1 | 0.10 | 0.30 | 0.09 | 0.29 |
| Child |  |  |  |  |  |
| Girl (ref.: boy) | 0-1 | 0.49 | 0.50 | 0.48 | 0.50 |
| Age | 8-15 | 11.09 | 2.19 | 11.10 | 2.14 |
| Number of siblings | 0-6 | 1.24 | 0.81 | 1.25 | 0.81 |

[^1]The descriptive statistics show that few children show symptoms of conduct and emotional problems (Table 2). On a scale from (0) 'not true' to (2) 'certainly true', all mean values are well below 1. On average, parents often show esteem for their children and parent-child conflicts are rare. About 90 percent of the respondents' partners are employed and 10 percent are long-distance commuters.

To further examine the differences between long-distance commuters and other employed parents, we compared the means of some indicators for the parent-child relationship and child well-being (Table 3). Instead of using individual items in the survey, we performed a factor analysis and used factor scores for esteem and conflict as well as for conduct problems and emotional symptoms to examine whether the mean scores differ statistically significantly by commuting distance. The mean value for the extent of parental esteem, as estimated by the parents, is significantly lower for longdistance commuters than for short- or medium-distance commuters. No other significant differences were found.

Table 3: Comparison of mean factor scores for parent-child relationship and child wellbeing by commuting distance

|  | Short-/Middle- <br> distance commuters | Long-distance <br> commuters | Difference <br> (t-test) |
| :--- | :---: | :---: | :---: |
| Parent Perspective |  |  |  |
| Parent-Child Relationship | .006 | -.077 | $* * *$ |
| Parental Esteem | -.001 | .010 |  |
| Parent-Child Conflict | -.002 | .024 | .017 |
| Child Well-Being | -.001 |  |  |
| $\quad$ Conduct Problems |  |  |  |
| $\quad$ Emotional Symptoms | -.002 | -.023 |  |
| Child Perspective | -.016 | .007 |  |
| Parent-Child Relationship |  |  |  |
| $\quad$ Parental Esteem |  |  |  |
| Parent-Child Conflict | -.010 | .011 |  |
| Child Well-Being | -.010 |  |  |
| $\quad$ Conduct Problems |  |  |  |
| Emotional Symptoms |  |  |  |

Source: pairfam, release 9.1.0, own calculations.
Significance level: $*^{* *} \leq .001,{ }^{* *} \leq .01, * \leq .05,+\leq .10$.

### 4.2 Multivariate analysis

We first examine the connection between commuting, the parent-child relationship and the child's well-being, and subsequently discuss results regarding the control variables.

The model for parental assessment in Table 4 indicates that long-distance commuters less often show esteem for their children than short-distance commuters ( $\beta=-.048, \mathrm{p} \leq$ $.05)$, although the coefficients are not significant when mothers and fathers are examined separately. This association between long-distance commuting and esteem is not confirmed by the children's data. From the child's perspective, however, father and child tend to have more conflicts if the father is a long-distance commuter ( $\beta=.057, \mathrm{p} \leq .10$ ).

These results partly confirm hypothesis 1a which predicts an association between long commuting times and a poorer parent-child relationship.

Table 4: The association between parents' long-distance commuting and the parent-child relationship (measured by esteem and conflict)

|  | Total sample |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Esteem |  | Conflict |  |
|  | Beta | SE | Beta | SE |
| Parent Perspective |  |  |  |  |
| Respondent: Commuting distance (Ref.: short distance) |  |  |  |  |
| Middle distance | -. 033 | . 025 | -. 020 | . 024 |
| Long distance | -. 048 * | . 022 | . 018 | . 020 |
| Respondent: Women | . 218 *** | . 033 | . 069 * | . 031 |
| Respondent: Work hours | . 029 | . 032 | -. 088 ** | . 028 |
| Respondent: Educational level | . 050 + | . 027 | . 064 * | . 026 |
| Partner: Employed (0-no, 1-yes) | -. 009 | . 025 | . 055 * | . 024 |
| Partner: Long distance commuting (0-no, 1-yes) | . 004 | . 024 | . 006 | . 025 |
| Child: Girl | . 063 * | . 025 | -. 030 | . 025 |
| Child: Age | -. 179 *** | . 021 | . 066 \%* | . 022 |
| Child: Number of siblings | -. 103 *** | . 026 | -. 018 | . 026 |
| Child Perspective |  |  |  |  |
| Respondent: Commuting distance (Ref.: short distance) |  |  |  |  |
| Middle distance | -. 020 | . 023 | . 010 | . 022 |
| Long distance | -. 007 | . 021 | . 030 | . 021 |
| Respondent: Women | . 078 ** | . 030 | . $052+$ | . 029 |
| Respondent: Work hours | -. 017 | . 030 | -. 078 ** | . 029 |
| Respondent: Educational level | . 035 | . 027 | . 078 ** | . 025 |
| Partner: Employed (0-no, 1-yes) | -. 023 | . 023 | . 000 | . 022 |
| Partner: Long distance commuting (0-no, 1-yes) | . 000 | . 022 | -. 005 | . 020 |
| Child: Girl | . 095 *** | . 024 | . 043 + | . 024 |
| Child: Age | -. 162 *** | . 025 | . 157 *** | . 020 |
| Child: Number of siblings | -. 124 *** | . 025 | -. 014 | . 024 |

Table 4: The association between parents' long-distance commuting and the parent-child relationship (measured by esteem and conflict) (continued)

|  | Fathers |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Esteem |  | Conflict |  |
|  | Beta | SE | Beta | SE |
| Parent Perspective |  |  |  |  |
| Respondent: Commuting distance (Ref.: short distance) |  |  |  |  |
| Middle distance | . 013 | . 038 | -. 053 | . 037 |
| Long distance | -. 053 | . 037 | . 011 | . 031 |
| Respondent: Women |  |  |  |  |
| Respondent: Work hours | -. 038 | . 033 | -. 006 | . 030 |
| Respondent: Educational level | . 067 + | . 037 | . 014 | . 039 |
| Partner: Employed (0-no, 1-yes) | -. 024 | . 035 | . $102 * *$ | . 037 |
| Partner: Long distance commuting ( 0 -no, 1-yes) | -. 007 | . 042 | . 107 *** | . 034 |
| Child: Girl | . 078 * | . 035 | -. 044 | . 033 |
| Child: Age | -. 182 *** | . 031 | -. 001 | . 029 |
| Child: Number of siblings | -. 170 **** | . 034 | . 082 * | . 036 |
| Child Perspective |  |  |  |  |
| Respondent: Commuting distance (Ref.: short distance) |  |  |  |  |
| Middle distance | . 002 | . 035 | -. 016 | . 034 |
| Long distance | . 006 | . 033 | . 057 + | . 034 |
| Respondent: Women |  |  |  |  |
| Respondent: Work hours | -. 048 | . 030 | -. 048 | . 030 |
| Respondent: Educational level | . 045 | . 033 | . 098 ** | . 035 |
| Partner: Employed (0-no, 1-yes) | -. 005 | . 036 | . 003 | . 037 |
| Partner: Long distance commuting ( 0 -no, 1-yes) | -. 023 | . 031 | -. 005 | . 033 |
| Child: Girl | . 039 | . 032 | . 042 | . 033 |
| Child: Age | -. 159 *** | . 031 | . 120 *** | . 027 |
| Child: Number of siblings | -. 130 *** | . 035 | . 056 | . 036 |

Table 4: The association between parents' long-distance commuting and the parent-child relationship (measured by esteem and conflict) (continued)

|  | Mothers |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Esteem |  | Conflict |  |
|  | Beta | SE | Beta | SE |
| Parent Perspective |  |  |  |  |
| Respondent: Commuting distance (Ref.: short distance) |  |  |  |  |
| Middle distance | -. 070 * | . 030 | . 012 | . 028 |
| Long distance | -. 038 | . 025 | . 011 | . 024 |
| Respondent: Women |  |  |  |  |
| Respondent: Work hours | . 069 * | . 030 | -. 119 *** | . 026 |
| Respondent: Educational level | . 040 | . 031 | . 098 *** | . 026 |
| Partner: Employed (0-no, 1-yes) | -. 002 | . 033 | . 030 | . 024 |
| Partner: Long distance commuting (0-no, 1-yes) | . 011 | . 025 | -. 026 | . 026 |
| Child: Girl | . 053 * | . 025 | -. 023 | . 026 |
| Child: Age | -. 182 *** | . 022 | . 106 *** | . 023 |
| Child: Number of siblings | -. 061 * | . 030 | -. 077 ** | . 029 |
| Child Perspective |  |  |  |  |
| Respondent: Commuting distance (Ref.: short distance) |  |  |  |  |
| Middle distance | -. 032 | . 026 | . 026 | . 025 |
| Long distance | -. 011 | . 024 | . 000 | . 026 |
| Respondent: Women |  |  |  |  |
| Respondent: Work hours | . 002 | . 028 | -. 077 ** | . 025 |
| Respondent: Educational level | . 030 | . 029 | . 065 ** | . 025 |
| Partner: Employed (0-no, 1-yes) | -. 036 | . 023 | . 016 | . 023 |
| Partner: Long distance commuting (0-no, 1-yes) | . 008 | . 025 | -. 004 | . 023 |
| Child: Girl | . 130 *** | . 027 | . 040 | . 025 |
| Child: Age | -. 163 *** | . 026 | . 180 *** | . 022 |
| Child: Number of siblings | -. 116 *** | . 028 | -. 060 * | . 025 |

Source: pairfam, release 9.1.0, own calculations. Significance level: $* * * \leq .001, * * \leq .01, * \leq .05,+\leq .10$. Parent perspective: $\mathrm{N}_{\text {Total }}=3,657, \mathrm{~N}_{\mathrm{Men}}=1,392$, $\mathrm{NWomen}=2,265, \mathrm{R}^{2}$ Total $=.302, \mathrm{R}^{2} \mathrm{Men}=.248, \mathrm{R}^{2}$ Women $=.246$. Child perspective: N Total $=4,229, \mathrm{~N}_{\text {Men }}=1,583$, $\mathrm{NW}_{\text {Women }}=2,646, \mathrm{R}^{2}$ Total $=.309, \mathrm{R}^{2} \mathrm{Men}=.286, \mathrm{R}^{2}$ Women $=.311$.

Correlations between the parent-child relationship and the child's well-being are strong and in the expected direction (Table 5): If parents show more esteem to their children, children exhibit fewer conduct problems ( $\beta=-.205, \mathrm{p} \leq .001$ ) and fewer emotional symptoms ( $\beta=-.122$, $\mathrm{p} \leq .001$ ). On the other hand, more conflicts with children are associated with more conduct problems ( $\beta=.624, \mathrm{p} \leq .001$ ) and emotional symptoms ( $\beta=.243, \mathrm{p} \leq .001$ ). The results are mirrored in the children's data. If children experience more esteem from their parents, they report fewer conduct problems ( $\beta=-.168, \mathrm{p} \leq .001$ ) and fewer emotional symptoms ( $\beta=-.093, \mathrm{p} \leq .01$ ). In contrast, parent-child conflicts are associated with more conduct problems ( $\beta=.422, \mathrm{p} \leq .001$ ) and more emotional symptoms ( $\beta=.325, \mathrm{p} \leq .001$ ). Therefore, hypothesis 1 b on the association between the parent-child relationship and the child's behavioral difficulties is fully supported.

Table 5: The association between the parent-child relationship (measured by esteem and conflict) and the child's well-being (measured by conduct problems and emotional symptoms)

|  | Total sample |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Conduct P. |  | Emotional S. |  |
|  | Beta | SE | Beta | SE |
| Parent Perspective |  |  |  |  |
| Esteem | -. 205 *** | . 034 | -. 122 *** | . 035 |
| Conflict | . 624 *** | . 028 | . 243 *** | . 032 |
| Respondent: Commuting distance (Ref.: short distance) |  |  |  |  |
| Middle distance | . 031 | . 022 | -. 003 | . 023 |
| Long distance | -. 009 | . 022 | . 001 | . 026 |
| Respondent: Women | . 002 | . 030 | . 007 | . 030 |
| Respondent: Work hours | . 145 *** | . 028 | . 023 | . 030 |
| Respondent: Educational level | -. 140 *** | . 023 | -. $094 * * *$ | . 026 |
| Partner: Employed (0-no, 1-yes) | -. $042+$ | . 022 | -. 092 *** | . 024 |
| Partner: Long distance commuting (0-no, 1-yes) | . 039 + | . 023 | . 024 | . 026 |
| Child: Girl | -. 134 *** | . 023 | . 039 | . 026 |
| Child: Age | -. 115 *** | . 020 | -. 065 ** | . 023 |
| Child: Number of siblings | . 096 *** | . 024 | -. 049 * | . 023 |
| Child Perspective |  |  |  |  |
| Esteem | -. 168 *** | . 045 | -. 093 ** | . 036 |
| Conflict | . 422 *** | . 035 | . 325 \%** | . 031 |
| Respondent: Commuting distance (Ref.: short distance) |  |  |  |  |
| Middle distance | -. 008 | . 022 | . 013 | . 024 |
| Long distance | . 000 | . 022 | . 007 | . 021 |
| Respondent: Women | . 003 | . 032 | -. 036 | . 030 |
| Respondent: Work hours | . 064 * | . 030 | . 063 * | . 029 |
| Respondent: Educational level | -. 106 *** | . 025 | -. $095 * * *$ | . 025 |
| Partner: Employed (0-no, 1-yes) | -. 017 | . 023 | -. 060 ** | . 021 |
| Partner: Long distance commuting (0-no, 1-yes) | . 011 | . 023 | . 033 | . 026 |
| Child: Girl | -. 144 *** | . 025 | . 097 *** | . 025 |
| Child: Age | -. 315 *** | . 021 | -. 218 *** | . 024 |
| Child: Number of siblings | . 043 + | . 026 | . 005 | . 024 |

Table 5: The association between the parent-child relationship (measured by esteem and conflict) and the child's well-being (measured by conduct problems and emotional symptoms) (continued)

|  | Fathers |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Conduct P. |  | Emotional S. |  |
|  | Beta | SE | Beta | SE |
| Parent Perspective |  |  |  |  |
| Esteem | -. 248 *** | . 051 | -. 163 *** | . 050 |
| Conflict | . 562 *** | . 042 | . 228 *** | . 046 |
| Respondent: Commuting distance (Ref.: short distance) |  |  |  |  |
| Middle distance | . 034 | . 035 | -. 021 | . 033 |
| Long distance | -. 007 | . 035 | . 033 | . 040 |
| Respondent: Women |  |  |  |  |
| Respondent: Work hours | . 082 ** | . 031 | . 002 | . 031 |
| Respondent: Educational level | -. 130 *** | . 035 | -. 056 | . 034 |
| Partner: Employed (0-no, 1-yes) | -. 069 + | . 036 | -. 160 *** | . 037 |
| Partner: Long distance commuting (0-no, 1-yes) | . 016 | . 038 | . 028 | . 031 |
| Child: Girl | -. 095 ** | . 032 | . 086 * | . 034 |
| Child: Age | -. $116 * * * *$ | . 029 | -. 069 * | . 032 |
| Child: Number of siblings | . 079 * | . 037 | -. 080 * | . 036 |
| Child Perspective |  |  |  |  |
| Esteem | -.156 ** | . 052 | -.162 ** | . 053 |
| Conflict | . 427 *** | . 047 | . 309 *** | . 044 |
| Respondent: Commuting distance (Ref.: short distance) |  |  |  |  |
| Middle distance | -. 012 | . 034 | . 013 | . 036 |
| Long distance | -. 016 | . 036 | . 020 | . 035 |
| Respondent: Women |  |  |  |  |
| Respondent: Work hours | . 002 | . 032 | . 018 | . 030 |
| Respondent: Educational level | -. 079 ** | . 036 | -. 034 | . 036 |
| Partner: Employed (0-no, 1-yes) | -. 010 | . 038 | -. 087 * | . 034 |
| Partner: Long distance commuting ( 0 -no, 1-yes) | . 045 | . 031 | -. 038 | . 033 |
| Child: Girl | -. 157 **** | . 034 | . 030 | . 033 |
| Child: Age | -. 314 **** | . 031 | -. 241 *** | . 030 |
| Child: Number of siblings | . 058 | . 040 | . 020 | . 035 |

Table 5: The association between the parent-child relationship (measured by esteem and conflict) and the child's well-being (measured by conduct problems and emotional symptoms) (continued)

|  | Mothers |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Conduct P. |  | Emotional S. |  |
|  | Beta | SE | Beta | SE |
| Parent Perspective |  |  |  |  |
| Esteem | -. 177 *** | . 037 | -. 099 ** | . 038 |
| Conflict | . 655 *** | . 030 | . 250 *** | . 034 |
| Respondent: Commuting distance (Ref.: short distance) |  |  |  |  |
| Middle distance | . 024 | . 025 | . 001 | . 027 |
| Long distance | -. 015 | . 025 | -. 032 | . 023 |
| Respondent: Women |  |  |  |  |
| Respondent: Work hours | . 131 *** | . 025 | . 031 | . 026 |
| Respondent: Educational level | -. 149 *** | . 025 | -. 114 *** | . 027 |
| Partner: Employed (0-no, 1-yes) | -. 013 | . 026 | -. 035 | . 024 |
| Partner: Long distance commuting (0-no, 1-yes) | . 051 * | . 026 | . 026 | . 026 |
| Child: Girl | $-.158 * * *$ | . 024 | . 012 | . 026 |
| Child: Age | -. 117 *** | . 022 | -. 065 ** | . 024 |
| Child: Number of siblings | . 100 *** | . 026 | -. $042+$ | . 025 |
| Child Perspective |  |  |  |  |
| Esteem | $-.185 * * *$ | . 053 | -. 067 + | . 041 |
| Conflict | . 411 *** | . 042 | . 322 *** | . 036 |
| Respondent: Commuting distance (Ref.: short distance) |  |  |  |  |
| Middle distance | -. 009 | . 026 | . 011 | . 025 |
| Long distance | . 013 | . 026 | . 003 | . 026 |
| Respondent: Women |  |  |  |  |
| Respondent: Work hours | . 074 ** | . 029 | . 068 ** | . 026 |
| Respondent: Educational level | -. $124 * * *$ | . 027 | -. $132 * * *$ | . 026 |
| Partner: Employed (0-no, 1-yes) | -. 021 | . 024 | -. 034 | . 024 |
| Partner: Long distance commuting (0-no, 1-yes) | . 003 | . 024 | . 050 + | . 028 |
| Child: Girl | -. 135 *** | . 028 | . 130 *** | . 025 |
| Child: Age | -. 316 *** | . 023 | -. 210 *** | . 025 |
| Child: Number of siblings | . 038 | . 027 | -. 008 | . 025 |

Source: pairfam, release 9.1.0, own calculations. Significance level: $* * * \leq .001, * * \leq .01, * \leq .05,+\leq .10$. Parent perspective: $\mathrm{N}_{\text {Total }}=3,657$, $\mathrm{N}_{\mathrm{Men}}=1,392$, $\mathrm{NWomen}=2,265, \mathrm{R}^{2}$ Total $=.302, \mathrm{R}^{2}$ Men $=.248, \mathrm{R}^{2}$ Women $=.246$. Child perspective: $\mathrm{N}_{\text {Total }}=4,229, \mathrm{~N}_{\text {Men }}=1,583$, $\mathrm{NWomen}^{2}=2,646, \mathrm{R}^{2}$ Total $=.309, \mathrm{R}^{2}{ }_{\mathrm{Men}}=.286, \mathrm{R}^{2}$ Women $=.311$.

A mediation analysis was performed to assess hypothesis 1c. In this analysis, the direct effects between parental commuting and the parent-child relationship and between the parent-child relationship and child well-being are multiplied to assess the indirect effects (Table 6). The indirect link for the parental sample shows that long-distance commuters less often show esteem, which translates into somewhat more frequent child conduct problems ( $\beta=.010, \mathrm{p} \leq .05$ ) and emotional symptoms ( $\beta=.006, \mathrm{p} \leq .10$ ). From the child's perspective, the indirect effect is that a father's long-distance commuting is associated with somewhat more father-child conflicts, which likewise translates into more child behavioral difficulties ( $\beta=.024, \mathrm{p} \leq .10$ ). Coefficients for other indirect effects are positive, but the results are not statistically significant. Thus, there are some indications of a link between parental commuting and the parent-child relationship, as parental commuting is associated with less esteem and paternal commuting with more father-child conflicts. Furthermore, the association between the parent-child relationship and the well-
being of the child is strong and highly significant. Overall, however, the indirect effects show that long-distance commuting is not very strongly associated with child well-being. This can also be seen in the analysis of the direct link between parental long-distance commuting and child well-being (Table A in the Appendix). Without the mediating parent-child relationship, children of long-distance commuting fathers more often report emotional symptoms ( $\beta=.068, \mathrm{p} \leq .05$ ). However, all other relationships are not significant. Overall, hypothesis 1c on the relationship between parental commuting and child well-being via the parent-child relationship is only partially confirmed.

Table 6: The indirect association between parental long-distance commuting and child well-being via the parent-child relationship

|  | Total sample |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Conduct $P$. <br> Beta | SE | Emoti Beta | SE |
| Parent Perspective |  |  |  |  |
| Short distance | $r e f$. |  | $r e f$. |  |
| Middle distance |  |  |  |  |
| via esteem | . 007 | . 005 | . 004 | . 003 |
| via conflict | -. 012 | . 015 | -. 005 | . 006 |
| Long distance |  |  |  |  |
| via esteem | . 010 * | . 005 | . 006 + | . 003 |
| via conflict | . 011 | . 013 | . 004 | . 005 |
| Child Perspective |  |  |  |  |
| Short distance | $r e f$. |  | $r e f$. |  |
| Middle distance |  |  |  |  |
| via esteem | . 003 | . 004 | . 002 | . 002 |
| via conflict | . 004 | . 009 | . 003 | . 007 |
| Long distance |  |  |  |  |
| via esteem | . 001 | . 003 | . 001 | . 002 |
| via conflict | . 013 | . 009 | . 010 | . 007 |

Table 6: The indirect association between parental long-distance commuting and child well-being via the parent-child relationship (continued)

|  | Fathers |  |  |  | Mothers |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Conduct P. |  | Emotional S. |  | Conduct P . |  | Emotional S. |  |
|  | Beta | SE | Beta | SE | Beta | SE | Beta | SE |
| Parent Perspective |  |  |  |  |  |  |  |  |
| Short distance | $r e f$. |  | $r e f$. |  | $r e f$. |  | $r e f$. |  |
| Middle distance |  |  |  |  |  |  |  |  |
| via esteem | -. 003 | . 009 | -. 002 | . 006 | . 012 * | . 006 | . 007 + | . 004 |
| via conflict | -. 030 | . 021 | -. 012 | . 009 | . 008 | . 019 | . 003 | . 007 |
| Long distance |  |  |  |  |  |  |  |  |
| via esteem | . 013 | . 009 | . 009 | . 007 | . 007 | . 005 | . 004 | . 003 |
| via conflict | . 006 | . 017 | . 003 | . 007 | . 007 | . 016 | . 003 | . 006 |
| Child Perspective |  |  |  |  |  |  |  |  |
| Short distance | ref. |  | $r e f$. |  | ref. |  | ref. |  |
| Middle distance |  |  |  |  |  |  |  |  |
| via esteem | . 000 | . 005 | . 000 | . 006 | . 006 | . 005 | . 002 | . 002 |
| via conflict | -. 001 | . 005 | -. 001 | . 005 | . 002 | . 004 | . 001 | . 002 |
| Long distance |  |  |  |  |  |  |  |  |
| via esteem | -. 007 | . 014 | -. 005 | . 010 | . 011 | . 010 | . 008 | . 008 |
| via conflict | . 024 + | . 015 | . 018 | . 011 | . 000 | . 011 | . 000 | . 008 |

Source: pairfam, release 9.1.0, own calculations. Significance level: $*_{* *} \leq .001, * * \leq .01, * \leq .05,+\leq .10$. Parent perspective: $\mathrm{N}_{\text {Total }}=3,657$, $\mathrm{N}_{\text {Men }}=1,392$, $\mathrm{NW}_{\text {Women }}=2,265, \mathrm{R}^{2}$ Total $=.302, \mathrm{R}^{2}$ Men $=.248, \mathrm{R}^{2}$ Women $=.246$. Child perspective: $\mathrm{NTotal}=4,229, \mathrm{~N}_{\text {Men }}=1,583$, $\mathrm{N}_{\text {Women }}=2,646, \mathrm{R}^{2}$ Total $=.309, \mathrm{R}^{2}{ }_{\mathrm{Men}}=.286, \mathrm{R}^{2}{ }_{\text {Women }}=.311$.

Hypothesis 2 suggested that long-distance commuting has greater consequences for the mother-child relationship than that between father and child. This assumption is not supported by the data. There is rather a contrary tendency: Children perceive more conflicts with their fathers if they have long commuting times ( $\beta=.057, \mathrm{p} \leq .10$, Table 4). For middle-distance commuting, it can be seen that mothers with a commuting time of 30 to 59 minutes indicate that they less often show esteem for their child ( $\beta=-.070, \mathrm{p} \leq .05$ ), which is ultimately reflected in more behavioral difficulties of the child ( $\beta=.012, \mathrm{p} \leq .05$ / $\beta=.007, \mathrm{p} \leq .10$, Table 6 ). Thus, the expected gender-specific effect is present for middledistance commuters but not long-distance commuters, as was hypothesized in our study.

The associations between commuting, parenting and child well-being are also presented graphically in Figure 2 for the parent's perspective, and Figure 3 for the child's perspective.

Figure 2: The association between parents' long-distance commuting, parent-child relationship and child well-being (evaluated by the parent)


Figure 3: The association between parents' long-distance commuting, parent-child relationship and child well-being (evaluated by the child)


Tables 4 and 5 also include control variables in order to put the results on commuting distance into context. In terms of parental gender, mothers generally more often show esteem for their child ( $\beta=.218, \mathrm{p} \leq .001$ ) and have more often conflicts with their child ( $\beta$ $=.069, \mathrm{p} \leq .05$ ) compared to fathers. This holds true for both, the parent's and child's perspective (Table 4).

Parents with longer working hours more often report that they show their child esteem ${ }^{2}$ (Table 4). At the same time, they are less likely to have conflicts with their child. This is true for mothers in particular. Children confirm this for the parent-child conflicts: they also state that they have fewer conflicts with particularly their mother if she works longer hours ( $\beta=-.077, \mathrm{p} \leq .01$ ). Thus, the positive correlation between longer working hours and a better parent-child relationship applies especially to mothers. With regard to the well-being of the child, both mothers and fathers with longer working hours more frequently report that their child has conduct problems (Table 5). This is also reported by children, but only if their mother works long hours.

Fathers with higher educational levels tend to show more esteem while children perceive more conflict with their father (Table 4). If the mother has a higher level of education, both the child and the mother report more mother-child conflicts. With regard to child well-being (Table 5), parents' higher educational level goes hand in hand with fewer child behavioral difficulties. Parents' and children's assessments are consistent here.

When information on the respondent's partner is taken into account, fathers in particular more often state that they have conflicts with their child if the mother is employed or has long commuting times (Table 4), and this translates into father's perception that their child has more behavioral difficulties (indirect effect $\beta=.057, p \leq .01$, Table B in the Appendix). Looking at the direct relationship between the partner's employment status and child well-being (Table 5), respondents, particularly fathers, report fewer child behavioral difficulties if the partner is employed. Children confirm this link by reporting fewer emotional symptoms when the partner of the interviewed father works. With regard to the direct link between the partner's commuting status and the child's well-being, mothers indicate that their child tends to show more conduct problems if the father is a long-distance commuter ( $\beta=.051, \mathrm{p} \leq .05$ ). To sum up, according to the father, mother's employment is associated with fewer behavioral difficulties of the child, whereas according to the mother a long-distance commuting father is associated with more child conduct problems. Furthermore, mother's employment and long commuting times are associated with more father-child conflicts, which are accompanied by a higher perception of problem behavior in the child by fathers.

This complex picture also varies according to the characteristics of the child. Parents more often show esteem to their daughters than to their sons (Table 4). This translates into somewhat fewer conduct problems and emotional symptoms among girls (indirect effects, Table C in the Appendix). In general, girls are less likely to have conduct problems but have the tendency to more often show emotional symptoms (Table 5).

Parental esteem decreases and conflicts increase with child's age (Table 4). Since a good parent-child relationship is accompanied by fewer behavioral difficulties (Table 5), a

2 We also tested alternative operationalizations of working time. Specifically, we distinguished between marginal employment with less than 20 hours, 20-40 hours, and more than 40 hours per week. Since the average working week for full-time jobs in Germany is between 36 and 40 hours, the last category that exceeds the regular duration of working time most likely impedes the parent-child relationship and child well-being. Compared to the linear specification of working hours, we find no differences between the models in terms of the direction of effects. There are a few slight differences in terms of the significance level but in general the results are very similar.
poorer parent-child relationship is ultimately accompanied by more behavioral difficulties on the part of the child with increasing age. However, the direct link between child's age and their well-being shows that behavioral difficulties decline with increasing age (Table 5). Thus, although behavioral problems decrease as the child grows older, a poorer parentchild relationship can counteract this development.

Finally, the number of siblings in the model was taken into account. When there are more siblings, both parents and children indicate that the parents show esteem less often (Table 4). Furthermore, fathers report more frequent father-child conflicts. In contrast, mothers and children report fewer mother-child conflicts. Parents estimate that their children have more conduct problems and fewer emotional difficulties when they have more siblings (Table 5). Coefficients for the child sample are largely insignificant.

## 5. Summary and discussion

To date, there has been little research on the possible consequences of long commuting times for family life and the children of commuters. This article uses data from the German Family Panel to investigate the relationship between parental commuting, the parent-child relationship and the child's well-being. It is the first study to simultaneously examine commuting by mothers and fathers. The actual working time, gender and educational level of the parent, the employment status as well as the commuting time of their partner, gender, and age of the child and number of siblings were controlled in the analysis.

Our results indicate that parents who spend a long time commuting to work perceive their own behavior as showing less esteem for their child. Children do not feel that they receive less esteem but they do report having somewhat more conflicts with their longdistance commuting fathers. Although the link between the parent-child relationship and the child's well-being is strong, there are only isolated and weak connections between parental commuting and child well-being via the parent-child relationship for the overall model. Parental perception of showing less esteem due to long commuting times therefore does not necessarily lead to more behavioral difficulties in the child.

The findings for control variables give interesting insights into the relationships examined in this study. It is apparent that mothers show esteem more often than fathers and have more conflicts with the child. The more frequent mother-child conflicts are also confirmed from the child's perspective. This is not surprising in view of the different roles fathers and mothers tend to assume in parenting. Mothers continue to be attributed the primary responsibility for childrearing and likely spend more time with their offspring. More time with children increases the opportunity for positive feedback but also for conflict situations. Furthermore, maternal esteem increases and mother-child conflicts decrease when mothers have a longer weekly working time. It seems that with longer working hours and presumably less time with children in quantitative terms, the quality of mother-child time increases and the quality of the mother-child relationship improves. It is also conceivable that mothers with longer working hours or commuting times do not
reduce the time they spend with their children but the time they spend on other activities, e.g. sports, friends, and sleep.

It is highly interesting to compare the effect of commuting time with that of working time. While a long commute leads to less esteem for the child, long working hours are accompanied by more maternal esteem. Therefore, it does not seem to be only the time a parent spends away from home and the child that matters. After all, commuting and working time both prolong absence from home and should therefore have similar effects. There seems to be a further component, such as stress associated with commuting or a different cognitive reaction to commuting vs. work, which leads to divergent consequences for the parent-child relationship.

The results on the partner's status provide some further insights: Fathers report having more conflicts with their child when the mother is employed or has long commuting times. In this case, the father probably spends more time with the child and has more responsibility for childcare, which can lead to more father-child conflicts. At the same time, according to the father, the child shows fewer conduct problems and emotional symptoms if the mother is employed as well. The child's well-being seems to benefit from the employment of both parents, but parents should not spend too much time at work.

A possible consideration with these results is that a parent's prolonged absence could lead to his/her overestimating their child's conduct problems, while more time spent with the child may lead to a more realistic assessment. However, this explanation only applies to the parental assessment of the child's behavior difficulties. It cannot explain why children report having fewer emotional symptoms when the respondent's partner is also employed.

With regard to partner's commuting time and child well-being, mothers indicate that the child is more likely to have conduct problems if the father is a long-distance commuter. This seems conceivable insofar as the father may spend hardly any time at home on weekdays due to employment and long commuting times, which leaves the mother largely left alone in her parenting role.

Parents and children differ in their individual perceptions of the parent-child relationship and the child's well-being. This can already be seen in the different mean values for the individual items in the parent and child samples (Table 2). On the one hand, parent-child interaction is perceived as conflictual significantly more frequently by parents. On the other hand, children report emotional problems significantly more frequently than their parents. This is not surprising, as these are inwardly directed symptoms that are less visible from the outside. In general, however, parental and child perspectives do not contradict but mutually reinforce each other. Overall, when the parent's perspective is taken into account, the effects found in the analysis have higher significance levels.

### 5.1 Limitations

Our analysis is a cross-sectional analysis. Thus, the information on parental commuting, the parent-child relationship and child well-being refers to the same point in time. We have used the panel structure of the German Family Panel to pool the information from
different waves in order to gain a sample size large enough for multivariate analysis and for separate analyses by gender. For a better insight into the causal relationship between parental commuting and child well-being, longitudinal analyses are preferable, which will become feasible with additional pairfam survey waves. In a cross-sectional research design, it is conceivable that our analysis is affected by sample selection bias and we predominantly capture families that are not too negatively affected by commuting. Families who have difficulties dealing with this additional demand may be more likely to drop out of the panel or the commuting parent finds another job closer to home or drops out of the labor market. Similarly, we only consider families where both parents and the child live in the same household. If commuting is associated with an increased risk of family dissolution, as was suggested in the literature, such families would not be included in our analysis, as single parents are not part of the sample. Long-distance commuting could be even more demanding for such parents, as the tasks and responsibilities in the household and family are not shared by two adults.

## 6. Conclusion

The starting point of this article was the question of whether parental commuting could have negative consequences for child well-being, with the parent-child relationship as the mediating mechanism. Some results indicate that long-distance commuting is indeed associated with a poorer parent-child relationship and ultimately with lower child wellbeing. However, the connection is rather sporadic and weak. Other factors are more important, such as the parent's workload and the partner's employment status. In line with the two studies available so far (Dunifon, Kalil, \& Bajracharya 2005; Li \& PollmannSchult 2016), all three studies point in the same direction: parental commuting tends to be accompanied by lower child well-being. However, in Li and Pollmann-Schult's (2016) study as well as in our study, there are only scattered indications of this connection.

Altogether, it seems to be less the commuting itself than the distribution of tasks and demands within a person as well as between the two parents that accounts for the wellbeing of the child. A good work-life balance is essential for both parents. With regard to the positive effect of mothers' employment, our results support calls for improving the reconciliation of work and parenthood in Germany. This would enable mothers to work a considerable number of hours, with positive implications for their economic independence as well as their mother-child relationship. But at the same time, fathers are more likely to have conflicts with their children when the mother works or commutes. The assumption is that fathers in such a situation spend more time and take on more responsibility for bringing up their children. This raises the question of the quality of the work-life balance of fathers who are strongly involved in the family, and the difficulties they face in reconciling work and parenthood.

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## Appendix

Table A: The Association between parental long-distance commuting and child well-being (measured by conduct problems and emotional symptoms (without parent-child relationship))

|  |  | Total sample |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Conduct $P$. <br> Beta |  |  | E | Emotional <br> Beta |  | SE |
| Parent Perspective |  |  |  |  |  |  |  |  |
| Short distance |  |  | $r e f$. |  |  |  |  |  |
| Middle distance |  |  | . 016 |  |  |  |  | . 023 |
| Long distance |  |  | . 023 |  |  |  |  | . 027 |
| Child Perspective |  |  |  |  |  |  |  |  |
| Short distance |  |  | $r e f$. |  |  |  |  |  |
| Middle distance |  |  | -. 010 |  |  |  |  | 0.24 |
| Long distance |  |  | . 021 |  |  |  |  | . 021 |
|  | Fathers |  |  |  | Mothers |  |  |  |
|  | Con |  | Emoti |  |  |  | Emo |  |
|  | Beta | SE | Beta | SE | Beta | SE | Beta | SE |
| Parent Perspective |  |  |  |  |  |  |  |  |
| Short distance | $r e f$. |  | ref. |  | ref. |  | ref. |  |
| Middle distance | . 008 | . 033 | -. 030 | . 030 | . 022 | . 028 | . 003 | . 025 |
| Long distance | . 058 | . 039 | . 058 | . 041 | -. 010 | . 026 | -. 028 | . 023 |
| Child Perspective |  |  |  |  |  |  |  |  |
| Short distance | $r e f$. |  | $r e f$. |  | ref. |  | ref. |  |
| Middle distance | -. 013 | . 032 | . 047 | . 032 | -. 007 | . 027 | . 010 | . 025 |
| Long distance | . 036 | . 040 | . 068 * | . 034 | . 011 | . 027 | -. 002 | . 026 |

Source: pairfam, release 9.1.0, own calculations. Significance level: $* * * \leq .001, * * \leq .01, * \leq .05,+\leq .10$. Parent perspective: $\mathrm{N}_{\text {Total }}=3,657$, N Men $=1,392$, $\mathrm{NWomen}=2,265, \mathrm{R}^{2}$ Total $=.001, \mathrm{R}^{2}{ }_{\mathrm{Men}}=.007, \mathrm{R}^{2}$ Women $=.001$. Child


Table B: The indirect association between parental long-distance commuting and child well-being via the parent-child relationship (evaluated by the parent)

| Parent Perspective | Total sample |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Conduct P. |  | Emotional S. |  |
|  | Beta | SE | Beta | SE |
| Commuting distance (ref.: short d.) |  |  |  |  |
| Middle distance |  |  |  |  |
| via esteem | . 007 | . 005 | . 004 | . 003 |
| via conflict | -. 012 | . 015 | -. 005 | . 006 |
| Long distance |  |  |  |  |
| via esteem | . 010 * | . 005 | . $006+$ | . 003 |
| via conflict | . 011 | . 013 | . 004 | . 005 |
| Respondent: Women |  |  |  |  |
| via esteem | -. 045 *** | . 010 | -. 027 ** | . 009 |
| via conflict | . 043 * | . 020 | . 017 * | . 008 |
| Respondent: Work hours |  |  |  |  |
| via esteem | -. 006 | . 007 | -. 004 | . 004 |
| via conflict | -. 055 ** | . 018 | -. 021 ** | . 008 |
| Respondent: Educational level |  |  |  |  |
| via esteem | -. 010 + | . 006 | -. 006 | . 004 |
| via conflict | . 040 * | . 016 | . 016 * | . 007 |
| Partner: Employed (0-no, 1-yes) |  |  |  |  |
| via esteem | . 002 | . 005 | . 001 | . 003 |
| via conflict | . 034 * | . 015 | . 013 * | . 006 |
| Partner: Long-distance (0-no, 1-yes) |  |  |  |  |
| via esteem | -. 001 | . 005 | -. 001 | . 003 |
| via conflict | . 004 | . 015 | . 001 | . 006 |
| Child: Girl |  |  |  |  |
| via esteem | -. 013 * | . 006 | -. 008 * | . 004 |
| via conflict | -. 019 | . 016 | -. 007 | . 006 |
| Child: Age |  |  |  |  |
| via esteem | . 037 *** | . 007 | . 022 *** | . 007 |
| via conflict | . 041 ** | . 014 | . 016 ** | . 006 |
| Child: Number of siblings |  |  |  |  |
| via esteem | . $021 * * *$ | . 006 | . 013 ** | . 005 |
| via conflict | -. 011 | . 016 | -. 004 | . 006 |

Table B: The indirect association between parental long-distance commuting and child well-being via the parent-child relationship (evaluated by the parent) (continued)

| Parent Perspective | Fathers |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Conduct P. |  | Emotional S. |  |
|  | Beta | SE | Beta | SE |
| Commuting distance (ref.: short d.) |  |  |  |  |
| Middle distance |  |  |  |  |
| via esteem | -. 003 | . 009 | -. 002 | . 006 |
| via conflict | -. 030 | . 021 | -. 012 | . 009 |
| Long distance |  |  |  |  |
| via esteem | . 013 | . 009 | . 009 | . 007 |
| via conflict | . 006 | . 017 | . 003 | . 007 |
| Respondent: Women via esteem via conflict |  |  |  |  |
| Respondent: Work hours |  |  |  |  |
| via esteem | . 009 | . 008 | . 006 | . 006 |
| via conflict | -. 003 | . 017 | -. 001 | . 007 |
| Respondent: Educational level |  |  |  |  |
| via esteem | -. 017 + | . 010 | -. 011 | . 007 |
| via conflict | . 008 | . 021 | . 003 | . 009 |
| Partner: Employed (0-no, 1-yes) |  |  |  |  |
| via esteem | . 006 | . 009 | . 004 | . 006 |
| via conflict | . 057 ** | . 021 | . 023 * | . 010 |
| Partner: Long-distance (0-no, 1-yes) |  |  |  |  |
| via esteem | . 002 | . 010 | . 001 | . 007 |
| via conflict | . 060 ** | . 020 | . 024 ** | . 009 |
| Child: Girl |  |  |  |  |
| via esteem | -. 019 * | . 009 | -. $013+$ | . 007 |
| via conflict | -. 025 | . 019 | -. 010 | . 008 |
| Child: Age |  |  |  |  |
| via esteem | . 045 *** | . 012 | . 030 ** | . 009 |
| via conflict | -. 001 | . 016 | . 000 | . 007 |
| Child: Number of siblings |  |  |  |  |
| via esteem | . 042 *** | . 013 | . 028 ** | . 011 |
| via conflict | . 046 * | . 020 | . 019 * | . 009 |

Table B: The indirect association between parental long-distance commuting and child well-being via the parent-child relationship (evaluated by the parent) (continued)

| Parent Perspective | Mothers |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Conduct P. |  | Emotional S. |  |
|  | Beta | SE | Beta | SE |
| Commuting distance (ref.: short d.) |  |  |  |  |
| Middle distance |  |  |  |  |
| via esteem | . 012 * | . 006 | . 007 + | . 004 |
| via conflict | . 008 | . 019 | . 003 | . 007 |
| Long distance |  |  |  |  |
| via esteem | . 007 | . 005 | . 004 | . 003 |
| via conflict | . 007 | . 016 | . 003 | . 006 |
| Respondent: Women via esteem via conflict |  |  |  |  |
| Respondent: Work hours |  |  |  |  |
| via esteem | -. 012 * | . 006 | -. $007+$ | . 004 |
| via conflict | -. $078 * * *$ | . 018 | -. 030 *** | . 008 |
| Respondent: Educational level |  |  |  |  |
| via esteem | -. 007 | . 006 | -. 004 | . 003 |
| via conflict | . 064 \% | . 017 |  | . 007 |
| Partner: Employed (0-no, 1-yes) |  |  |  |  |
| via esteem | . 000 | . 006 | . 000 | . 003 |
| via conflict | . 020 | . 016 | . 008 | . 006 |
| Partner: Long-distance (0-no, 1-yes) |  |  |  |  |
| via esteem | -. 002 | . 004 | -. 001 | . 003 |
| via conflict | -. 017 | . 017 | -. 007 | . 007 |
| Child: Girl |  |  |  |  |
| via esteem | -. 009 * | . 005 | -. $005+$ | . 003 |
| via conflict | -. 015 | . 017 | -. 006 | . 006 |
| Child: Age |  |  |  |  |
| via esteem | . 032 *** | . 008 | . 018 ** | . 007 |
| via conflict | . 070 *** | . 016 | . 027 **** | . 007 |
| Child: Number of siblings |  |  |  |  |
| via esteem | . $011+$ | . 006 | . 006 | . 004 |
| via conflict | -. 050 ** | . 019 | -. 019 * | . 008 |

Source: pairfam, release 9.1.0, own calculations. Significance level: ${ }^{*} * * \leq .001$, $* * \leq .01, * \leq .05,+\leq .10$. NTotal= 3,657 , NMen $=1,392$, NWomen $=2,265, R^{2}{ }_{\text {Total }}=.302$, $\mathrm{R}^{2}$ Men $=.248$, $\mathrm{R}^{2}$ Women $=.246$.

Table C: The indirect association between parental long-distance commuting and child well-being via the parent-child relationship (evaluated by the child)

| Child Perspective | Total sample |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Conduct P. |  | Emotional S. |  |
|  | Beta | SE | Beta | SE |
| Commuting distance (ref.: short d.) |  |  |  |  |
| Middle distance |  |  |  |  |
| via esteem | . 003 | . 004 | . 002 | . 002 |
| via conflict | . 004 | . 009 | . 003 | . 007 |
| Long distance |  |  |  |  |
| via esteem | . 001 | . 003 | . 001 | . 002 |
| via conflict | . 013 | . 009 | . 010 | . 007 |
| Respondent: Women |  |  |  |  |
| via esteem | -. 013 * | . 006 | $-.007+$ | . 004 |
| via conflict | . 022 + | . 013 | . 017 + | . 010 |
| Respondent: Work hours |  |  |  |  |
| via esteem | . 003 | . 005 | . 002 | . 003 |
| via conflict | -. 033 ** | . 013 | -. 025 ** | . 010 |
| Respondent: Educational level |  |  |  |  |
| via esteem | -. 006 | . 005 | -. 003 | . 003 |
| via conflict | . 033 ** | . 011 | . 025 ** | . 008 |
| Partner: Employed (0-no, 1-yes) |  |  |  |  |
| via esteem | . 004 | . 004 | . 002 | . 002 |
| via conflict | . 000 | . 009 | . 000 | . 007 |
| Partner: Long-distance (0-no, 1-yes) |  |  |  |  |
| via esteem | . 000 | . 004 | . 000 | . 002 |
| via conflict | -. 002 | . 009 | -. 001 | . 007 |
| Child: Girl |  |  |  |  |
| via esteem | -. 016 * | . 006 | -. 009 * | . 004 |
| via conflict | . 018 + | . 010 | . 014 + | . 008 |
| Child: Age |  |  |  |  |
| via esteem | . $027 * * *$ | . 007 | . $015 * *$ | . 006 |
| via conflict | . 066 *** | . 011 | . $051 * * *$ | . 009 |
| Child: Number of siblings |  |  |  |  |
| via esteem | . 021 ** | . 007 | . 012 * | . 005 |
| via conflict | -. 006 | . 010 | -. 004 | . 008 |

Table C: The indirect association between parental long-distance commuting and child well-being via the parent-child relationship (evaluated by the child) (continued)

| Child Perspective | Fathers |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Conduct P. |  | Emotional S. |  |
|  | Beta | SE | Beta | SE |
| Commuting distance (ref.: short d.) |  |  |  |  |
| Middle distance |  |  |  |  |
| via esteem | . 000 | . 005 | . 000 | . 006 |
| via conflict | -. 001 | . 005 | -. 001 | . 005 |
| Long distance |  |  |  |  |
| via esteem | -. 007 | . 014 | -. 005 | . 010 |
| via conflict | . 024 + | . 015 | . 018 | . 011 |
| Respondent: Women via esteem via conflict |  |  |  |  |
| Respondent: Work hours |  |  |  |  |
| via esteem | . 008 | . 005 | . 008 | . 006 |
| via conflict | -. 021 | . 013 | -. 015 | . 010 |
| Respondent: Educational level |  |  |  |  |
| via esteem | -. 007 | . 006 | -. 007 | . 006 |
| via conflict | . 042 ** | . 016 | . 030 ** | . 012 |
| Partner: Employed (0-no, 1-yes) |  |  |  |  |
| via esteem | . 001 | . 006 | . 001 | . 006 |
| via conflict | . 001 | . 016 | . 001 | . 011 |
| Partner: Long-distance (0-no, 1-yes) |  |  |  |  |
| via esteem | . 004 | . 005 | . 004 | . 005 |
| via conflict | -. 002 | . 014 | -. 001 | . 010 |
| Child: Girl |  |  |  |  |
| via esteem | -. 006 | . 005 | -. 006 | . 006 |
| via conflict | . 018 | . 014 | . 013 | . 010 |
| Child: Age |  |  |  |  |
| via esteem | . 025 ** | . 009 | . 026 ** | . 010 |
| via conflict | . 051 *** | . 013 | . 037 *** | . 011 |
| Child: Number of siblings |  |  |  |  |
| via esteem | . 020 * | . 009 | . 021 * | . 009 |
| via conflict | . 024 | . 016 | . 017 | . 011 |

Table C: The indirect association between parental long-distance commuting and child well-being via the parent-child relationship (evaluated by the child) (continued)

| Child Perspective | Mothers |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | Conduct P. |  | Emotional S. |  |
|  | Beta | SE | Beta | SE |
| Commuting distance (ref.: short d.) |  |  |  |  |
| Middle distance |  |  |  |  |
| via esteem | . 006 | . 005 | . 002 | . 002 |
| via conflict | . 002 | . 004 | . 001 | . 002 |
| Long distance |  |  |  |  |
| via esteem | . 011 | . 010 | . 008 | . 008 |
| via conflict | . 000 | . 011 | . 000 | . 008 |
| Respondent: Women via esteem via conflict |  |  |  |  |
| Respondent: Work hours |  |  |  |  |
| via esteem | . 000 | . 005 | . 000 | . 002 |
| via conflict | -. 032 ** | . 011 | -. 025 ** | . 009 |
| Respondent: Educational level |  |  |  |  |
| via esteem | -. 006 | . 006 | -. 002 | . 002 |
| via conflict | . 027 * | . 011 | . 021 * | . 009 |
| Partner: Employed (0-no, 1-yes) |  |  |  |  |
| via esteem | . 007 | . 005 | . 002 | . 002 |
| via conflict | . 007 | . 009 | . 005 | . 007 |
| Partner: Long-distance (0-no, 1-yes) |  |  |  |  |
| via esteem | -. 002 | . 005 | -. 001 | . 002 |
| via conflict | -. 002 | . 009 | -. 001 | . 007 |
| Child: Girl |  |  |  |  |
| via esteem | -. 024 ** | . 009 | -. 009 | . 006 |
| via conflict | . 017 | . 010 | . 013 | . 008 |
| Child: Age |  |  |  |  |
| via esteem | . 030 *** | . 009 | . 011 + | . 007 |
| via conflict | . $074 * * *$ | . 012 | . $058 * * *$ | . 010 |
| Child: Number of siblings |  |  |  |  |
| via esteem | . 022 * | . 008 | . 008 | . 005 |
| via conflict | -. 025 * | . 011 | -. 019 * | . 008 |

Source: pairfam, release 9.1.0, own calculations. Significance level: $*_{* *} \leq .001$, $* * \leq .01, * \leq .05,+\leq .10$. NTotal $=$ 4,229 , NMen $=1,583$, NWomen $=2,646, \mathrm{R}^{2}$ Total $=.309, \mathrm{R}^{2}$ Men $=.286, \mathrm{R}^{2}$ Women $=.311$.

## Information in German

## Deutscher Titel

Das Fernpendeln der Eltern und das Wohlbefinden des Kindes in Deutschland

## Zusammenfassung

Die Zahl der Berufspendler/-innen ist in Deutschland insgesamt angestiegen. Dies betrifft auch die Gruppe der Langzeit-/Fernpendler/-innen, die mindestens zwei Stunden für den Hin- und Rückweg zur Arbeit benötigen. Die Gruppe dieser Fernpendler/-innen umfasst in Deutschland rund 1,6 Millionen Personen. Bislang existiert jedoch nur wenig Forschung zu den möglichen Konsequenzen langer Pendelzeiten für das Familienleben und die Entwicklung von Kindern. Auf der Basis eines gepoolten Datensatzes des Deutschen Familienpanels pairfam wird nunmehr der Zusammenhang zwischen dem elterlichen Fernpendeln, der Qualität der Eltern-Kind-Beziehung und dem kindlichen Wohlbefinden untersucht, und dies sowohl aus der Perspektive der Eltern als auch aus der Kindesperspektive. Einige der Ergebnisse deuten darauf hin, dass Fernpendeln sich negativ auf die Eltern-Kind-Beziehung und das kindliche Wohlbefinden auswirkt. Allerdings ist dieser Zusammenhang eher schwach ausgeprägt.
Schlagwörter: Fernpendeln, kindliches Wohlbefinden, Eltern-Kind-Beziehung, Eltern- vs. Kindesperspektive, Strukturgleichungsmodellierung

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[^1]:    Source: pairfam, release 9.1.0, own calculations.

