COMPATIBILITY OF FAMILY AND WORK: HOW DO FAMILIES IN THE RUHR REGION/GERMANY DEAL WITH MOBILITY-RELATED CHALLENGES?

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With 3 figures and 1 table
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Summary: Mobility-related challenges severely impact on everyday lives of families with young children. Since this is especially true for families with children younger than ten, here we focus on the mobility coping strategies and patterns they develop to reconcile family and work life. The paper is based on a qualitative empirical study in which 40 mothers and fathers were interviewed in the Ruhr region in 2018. The results show that their most pressing mobility challenges are related to time-based and financial restrictions. Common strategies in adapting to these challenges are commuting by car, by involving the grandparent generation in childcare, and by reducing the mother's (paid) working hours. Especially the interviewed mothers see the latter as a compromise rather than a satisfactory measure. Families who cannot resort to these strategies might be faced with social exclusion.

Zusammenfassung: Mobilitätsbezogene Herausforderungen haben einen großen Einfluss auf den Alltag von Familien mit jungen Kindern. In diesem Beitrag wird die Vereinbarkeit von Familie und Beruf unter besonderer Berücksichtigung der Mobilitätsmuster von Familien mit Kindern unter zehn Jahren untersucht. Der Beitrag basiert auf einer qualitativen Interview-Studie mit 40 Müttern und Vätern, die im Jahr 2018 in der Metropole Ruhr durchgeführt wurde. Die Ergebnisse zeigen, dass die wichtigsten Mobilitätsherausforderungen im Alltag von Familien mit zeitlichen und finanziellen Restriktionen zusammenhängen. Strategien zur Anpassung an diese Herausforderungen sind die verstärkte Nutzung des Pkws, die Einbeziehung der Großelterngeneration in die Kinderbetreuung und die Reduzierung der (bezahlten) Arbeitszeit der Mutter. Insbesondere die befragten Mütter sehen darin eher einen Kompromiss als eine zufriedenstellende Maßnahme. Für Familien, die diese Strategien nicht anwenden können, z.B. weil sie keinen Pkw besitzen oder nicht über ein entsprechendes Netzwerk verfügen, kann soziale Exklusion die Folge sein.

Keywords: mobility patterns; families with young children; compatibility of family and work; Ruhr area; mobility strategies, qualitative interviews

1 Introduction

Most people in Germany find it hard to imagine everyday life without being mobile. Although mobility has always been a basic need, in modern times it has become a necessity. Today residences, workplaces and shopping opportunities are often geographically separated. The growing need to be mobile over longer distances is connected to technological progress and to socio-economic developments. These have led to means of transport becoming faster and faster as well as to being a bulk commodity, which in turn has increased individual mobility requirements.

Many daily commutes have become longer, be it because better paying jobs are found in the next big city (cf. Rosenbaum 2016 for the individualization trends in mobility). In Germany, one fifth of all commutes are more than 30 kilometers each way, and one in ten commutes is 50 kilometers or longer. For many commuting to and from work consequently takes up considerable part of their day. In 2016, a quarter of all employees spent more than one hour per day commuting (Destatis 2017), with cars being by far the main mode of transportation (as driver or passenger 63%, as driver 59%), followed by public transportation as a distant second (15%), by bicycles (13%), and finally by walking (9%; FMTDI 2018).

Households with children are often faced with additional mobility demands. More and more often, kindergartens, schools, and after school activities are not chosen for proximity but for reputation, accepting longer commutes as a consequence. Those commutes are particularly dependent on automobility, especially when (namely young) children need to be brought or picked up (cf. Herget 2013; Sánchez de Madariaga 2013). We argue that the need to combine commutes to work as well as to kindergartens and schools etc. contribute to families

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being faced with serious challenges, which in some cases even can lead to mobility-based social exclusion. This is due to the fact, that escorting trips usually increase the amount of time and, depending on the trip, money spent for mobility. Furthermore, the time that has to be spent on routes leads to a conflict between working hours and opening hours of kindergartens and schools. However, reduced weekly working hours (part-time work) result in lower incomes. Especially for carless and low-income families, temporal and financial expenses for escorting trips might lead to restrictions for other activities (e.g. social activities, sports, etc.).

Our reference here is the concept of mobility-related social exclusion introduced by Church et al. (2000). They distinguish seven different dimensions of social exclusion: physical exclusion (lack of physical accessibility), geographical exclusion (lack of transportation infrastructure, e.g., in rural areas), exclusion from facilities (lack of accessibility to destinations, e.g., workplace or kindergarten) and economic exclusion (too high costs for mobility and/or too low income), time-based exclusion (too much time expenditure for mobility and/or too little personal time budget) as well as fear-based exclusion (fear of crime or dangers of road traffic) and space exclusion (access restrictions in public and quasi-public spaces). In conclusion, mobility is a prerequisite to participate in social activities, i.e., work, education, meeting relatives and friends, etc. Whoever is not mobile stands the risk of not being able to participate in social activities, be it for financial reasons or lack of a sufficient mobility infrastructure.

Our study focuses on families with children under ten years, since they are the population group that uses the car for trips in daily life most often (FMTDI 2018). We expected several mobility-related challenges in those families' daily lives, which drive them to use the car so often, e.g. compatibility of family and work, additional trips due to childcare, fear of traffic safety or crime, etc. For our study area we chose the Ruhr region because it is characterized by both a proximity of densely populated urban areas with a developed public transportation system as well as less densely populated suburban and rural areas with an underdeveloped public transportation system. Our findings will allow us to gain better insights into the mobility-related challenges families with young children face and to make suggestions for how to best deal with those challenges.

In the following sections we will provide a literature review on families' daily lives and their mobility, introduce the study area, present the methodology used here, and will close by introducing and discussing the results of our empirical analysis. The result chapter will start with a description of the interviewed families' life situation and mobility patterns, followed by an analysis of their mobility-related challenges and the strategies they devise to counter those challenges in their daily lives. The paper will conclude with a discussion of the results.

2 Daily mobility of families with young children

Although mobility trends show that young adults have recently been using the car less frequently than previous generations (cf. Chatterjee et al. 2018; Hjorthol 2016; Kuhnimhof et al. 2012a, 2012b), this is only true for those "who have left their parent's home and have not yet started their own family" (IFMO 2013,22). Their mobility patterns, however, change with the birth of the first child (cf. Clark et al. 2014; Lanzendorf 2010; Müggenburg 2017). During parental leave, commuting to work is not an issue but it becomes one when that parent returns to work (Heine et al. 2001). In Germany, parental leave can last up to three years and is comparable to countries like France, Spain, and the Czech Republic but it is much longer than in Finland, Italy, Portugal (one year), or Sweden and the United Kingdom (1.5 years; van Belle 2016).

The proportion of working mothers has increased in the past years. Today, 78% of mothers of school children work. Although there are facilitations for returning to work after parental leave in Germany, 55% of mothers work part-time instead of returning to full-time work (Destatis 2020). It is worth mentioning that even 30 years after German reunification, gender differences in employment patterns between families in East and West Germany have prevailed (Bauer et al. 2015; Herget 2013). For example, the share of mothers working full-time in East Germany remains higher than in West Germany (Destatis 2020). This study however refers to families in the Ruhr region which is located in West Germany where part-time work of mothers is still common.

Research results show that parents' mobility patterns are different compared to other population groups. Households with (young) children are much more mobile as the number and types of trips necessary are higher. Not only do trips to work need to be made, children need to be taken to kindergarten or elementary school, hobbies, doctors,

etc. The types of trips called "mobility of care" by Sánchez de Madariaga (2013) lead to parents of young children averaging 3.5 of trips per capita and day compared to couples without children, who average three trips per capita and day. With four trips a day, single parents average the most number of trips per capita (Bauer et al. 2015). During the last decades trips made for care purposes have significantly increased as the example of commuting to school clearly shows. In the 1970s and 1980s almost all 6- to 7-year-old children in Germany made their way to school alone or with other children (90%), in 2000 that share had gone down to 52% (Limbourg 2008). Recent research also finds that the trend of independent mobility of children continues to decrease, while the share of parents escorting them continues to increase (cf. Scheiner 2019 for a detailed literature review). The preferred mode of transportation varies: Families living on the outskirts of cities or in rural areas tend to use the car for care purposes, whereas families living in the city center tend to use public transport, cycle or, walk (e.g., Carver et al. 2013; Kevenhörster 2000; McDonald 2005).

Other research reveals that households with children do not only show different mobility patterns but that they also differ with regard to car availability. While half of single households and almost three quarters of childless two-person households between 18 and 29 years have one or more cars, 91% of households with at least one child under six years and 95% of households with at least one child under 14 years have one or more cars (Tab. 1). The increased car ownership of families is independent of the spatial type of municipality. Even in metropolises, 85% of households with at least one child under 14 years have one or more cars, while only half of young two-person households have at least one car(s) (FMTDI 2018).

When taking a closer look at commuting times and distances, for Germany and for other western countries, it becomes apparent that there is a significant gender gap, which is especially true for family households (cf. Chidambaram and Scheiner 2020; European Communities 2004; McQuaid and Chen 2012; Motte-Baumvol et al. 2017). Although there is an overall equalization of gender differences in mobility patterns among young adults (IFMO 2013, see also Tilley and Houston 2016 for findings on a gender turnaround), the birth of a child leads to a more traditional distribution of gender roles and a shift in trip purposes (Best and Lanzendorf 2005; Scheiner 2013; Sicks 2011). While mothers are more likely than fathers to make shopping and accompanying trips, the proportion of work-related trips is higher for fathers (Ahrend and Herget 2012; Sánchez de Madariaga 2013; Schwanen 2011). Even when both parents are fully employed, these differences can be observed (Ahrend and Herget 2012). In addition, for mothers the proportion of trips made on foot and by car increases after the birth of a child. Interestingly, the birth of a child does not influence the mobility of fathers (Scheiner and Holz-Rau 2013). However, this seems to apply mainly for households with two cars, as more re-

Tab. 1. Car ownership by different household types. Data source: FMTDI 2018.

Household type	No car	1 car	≥ 2 cars
1-person-household (18-29 years)	51 %	47 %	2 %
1-person-household (30-59 years)	38 %	59 %	3 %
1-person-household (≥ 60 years)	40 %	58 %	2 %
2-person-household (youngest person 18-29 years)	28 %	43 %	29 %
2-person-household (youngest person 30-59 years)	9 %	47 %	44 %
2-person-household (youngest person ≥ 60 years)	8 %	72 %	20 %
Households with ≥ 3 adults	7 %	27 %	66 %
Households with ≥ 1 child under 6 years	9 %	45 %	46 %
Households with ≥ 1 child under 14 years	5 %	38 %	57 %
Households with ≥ 1 child under 18 years	5 %	35 %	61 %
Households with a single parent	27 %	71 %	2 %

cently, Scheiner (2020) finds for couple households owning one car, that in households without children the male partner gains more access to the car, while having young children results in higher access to the car for the mother.

Although previous research has shown the differences in mobility patterns between households with and without children, little is still known about the mobility-related challenges that families perceive in their daily lives and where they see limitations to their participation possibilities. Previous studies that include mobility-related challenges mainly look at parents' car dependency (e.g., McLaren 2016) or children's road safety and accompanying travel by parents (e.g., Murray 2009; Parusel and McLaren 2010). Bauer et al. (2017) find that low-income families, single parent families, and families with a high workload are faced with manifold challenges. More general studies on mobility-based social exclusion name low-income households, single-parent households, and carless households as more likely to be socially excluded which may also include family households (cf. Hurni 2007; Lucas et al. 2016; Ricciardi et al. 2015). The mobility-related challenges of families with young children, how they cope with these challenges, and if they perceive mobility-related social exclusion has found little consideration so far. Since our approach places a special focus on how mothers and fathers perceive mobility-related challenges when it comes to reconciling family and work, we decided on a qualitative methodological approach.

3 Study area and methodology

Our research was carried out in the Ruhr region. Located in the center of North Rhine-Westphalia, the Regional Association Ruhr ("Regionalverband Ruhr") with its 5.1 million inhabitants is the largest metropolitan area in Germany and, after Paris, the second largest in the European Union. The largest cities are Dortmund and Essen with about 580,000 inhabitants and Duisburg with almost 490,000 inhabitants (RVR 2012). South of the Ruhr region is Düsseldorf, North Rhine-Westphalia's capital and the destination of many commuters. All in all, the regional association Ruhr includes eleven more densely populated cities (population density: minimum 800, but mostly more than 2,000 inhabitants/km²) and four less populated administrative districts (average population density: less than 800 inhabitants/km²).

3.1 Study area

We chose four municipalities in the western part of the Ruhr region for our study: The metropolis Oberhausen, the medium-sized cities Dinslaken and Voerde, and the small municipality Hünxe (Fig. 1). The selection of the municipalities followed different criteria. On the one hand, the total number of inhabitants and the population density of the selected municipalities should vary considerably to enable a spatial comparison between urban and more suburban/rural areas. On the other hand, the selected municipalities should be closely connected in terms of space and infrastructure in order to minimize external influencing factors such as deviating public transportation charges for different transportation systems. At the same time, the socio-demographic conditions should also be comparable. Particular attention was paid to a similar age structure as well as to a relatively stable population development, which led to excluding old-industrialized municipalities with a strong population decline.

The city of Oberhausen is the largest city in the study area with a population of 210,800, a population density of 2,700 inhabitants per km², and 523 registered cars per 1,000 inhabitants in 2019 (IT.NRW 2020c). In addition to several freeways, Oberhausen counts four railway stations and is equipped with a well-developed public transportation network, i.e., local and long-distance trains, trams, and buses.

Dinslaken is classified as a large medium-sized city with 67,400 inhabitants, a population density of 1,400 inhabitants per km², and 611 registered cars per 1,000 inhabitants in 2019 (IT.NRW 2020a). Dinslaken's railway station serves as the central hub for buses, a tram line to Duisburg, and regional trains to Wesel and Düsseldorf.

The town of Voerde is classified as a smaller medium-sized city with a population of about 36,000 inhabitants, a population density of 670 inhabitants per km² and 614 registered cars per 1,000 inhabitants in 2019 (IT.NRW 2020d). There are two railway stations in Voerde and Voerde-Friedrichsfeld with trains running to Wesel and Düsseldorf and it has a bus system.

In 2019, the total population in the municipal area of Hünxe was 13,600 inhabitants, with 5,300 inhabitants in the main settlement, a population density of 127 inhabitants per km², and 715 registered cars per 1,000 inhabitants (IT.NRW 2020b). The only form of public transportation in Hünxe is

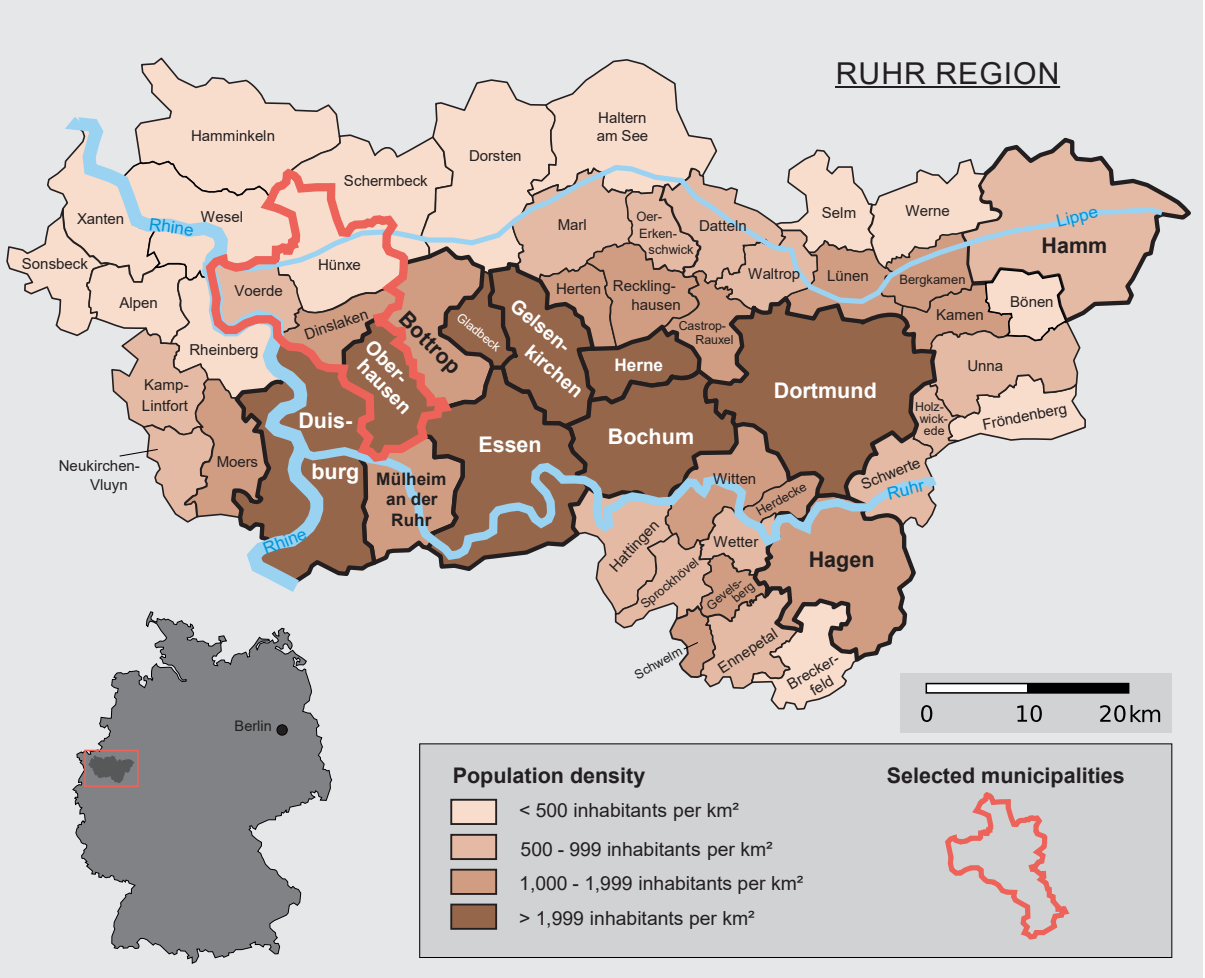

Fig. 1: Selected municipalities within the Ruhr region

a bus system that also includes a voluntary operated citizen's bus, with buses typically only running every two hours on weekdays and even less frequently on weekends and public holidays.

3.2 Methodology

We studied the daily mobility patterns of families with young children living in our study region through qualitative guided interviews with mothers and fathers of at least one child under the age of ten. We concentrated on households with young children since younger children are more dependent on (the mobility of) their parents than older ones, which in turn leads to more challenges when organizing daily life and when trying to reconcile family and work.

Between October 2017 and January 2019, a total number of 40 parents (30 mothers and 10 fathers of 35 households) were interviewed. We had not intended to focus on mothers, but they were more willing to participate in the study, especially since they often worked part-time and made time for the interview in the afternoons. We came into contact with our interviewees through kindergarten and elementary school managements, who forwarded an invitation letter to participate in the study, and through social media. All parents who responded and met the selection criteria (place of residence, children's age) were included in the study. After the first recruitment round there was a bias towards well-off families with two parents, while less well-off families and single parents were underrepresented. During the second recruitment round we managed to correct that bias through the support of a personal mediation through kindergarten and school managements, social workers, and neighborhood managements. Our sample now includes a variety of socio-economic groups and

household sizes. The selection of interviewees can be described as a "theoretical sampling" (Lamnek 2010, 171) with the support of mediators (kindergarten and elementary school managements as well as social workers as "gatekeepers"; Merkens 2010, 288).

The guided interviews were conducted in the selected municipalities either in a café, at a school, or in the families' homes and they lasted between 28 and 114 minutes. Each interview was given a basic structure by using an interview guideline. Questions relating to the family context included learning about the family's structure and which family members play an important role in organizing everyday life, namely childcare. Questions were also asked about why that particular place of residence had been chosen and how satisfied the interviewees were in general with their place of residence. Questions related to better understanding the family's mobility patterns included describing the course of a normal day, activities carried out, means of transport used, and which factors are important for the choice of means of transportation. Questions related to mobility challenges and social exclusion were addressed by asking general questions about challenges in everyday life and by asking the interviewees to comment on whether they perceive the dimensions of social exclusion defined by Church et al. (2000) as a challenge in their everyday life or not.

All interviews were recorded with a dictation device and fully transcribed. We derived the analysis categories from the interview guideline and combined them with an inductive category scheme.

4 Empirical findings

Our empirical findings are centered on three focal points. We first describe the interviewed families' living situation and mobility patterns, then we discuss their mobility-related challenges, followed by an outline of their strategies in dealing with these challenges.

4.1 Living situation and mobility patterns

Our findings confirm the earlier mentioned trend of both parents being part of the workforce. The formerly classic role distribution of German households, where "men took care of the bread-winning while women were solely responsible for caregiving" (Best and Lanzendorf 2005, 110) no longer describes the situation in Germany (cf. Institut für Demoskopie Allensbach 2015; Nobis and Lenz 2005). When taking a closer look though, one finds that only in a few of the 31 couple households both parents worked full-time. In those families in which only one parent worked full time, it was typically the father. Mothers in those family either only worked part-time or they had stopped working after the child was born. This finding show that gender differences continue to characterize the majority of the interviewed households.

Regardless of the amount of time spent at work, two thirds of the interviewees commute to work to another city; in many cases each parent commutes to a different city. In all cases they typically commute to work by car, only few take the train or bus, or ride a bicycle to work. Most commutes take between 30 and 45 minutes each way.

Next to the households' socio-demographic and socio-economic positions, their place of residence was taken into consideration. Most interviewees reported two main reasons for having chosen their place of residence: first, it allowed them to be close to other family members (especially parents or parents-in-law), and second, it was a place they could afford to buy or rent. Although mobility was rarely named as a main factor, it often affected the decision indirectly (e.g., workplaces' accessibility): "To be honest, I didn't even think about [the mobility] beforehand. I just wanted to be near my parents. That only came out gradually, when you realized: 'Oh, the bus schedule. They don't run very often. How do you get away from here?' [...] In retrospect! Only a small supermarket. Half of the assortment you need isn't even there" (female interviewee with two children living in Voerde; V7).

Our results show that the location of residence within the municipality impacts families' mobility patterns more than the size of the municipality itself. The accessibility of workplaces and shopping facilities varies as well as the availability of different means of transport. Mothers and fathers who live in or close to the center commute to work by bus or train (unless they do not bring the children to school or kindergarten) and run errands by cycling or walking. Those interviewed households that live at the edge of town commute by car, even those that live in the metropolis Oberhausen: "Since I have the little one, we have a second car, because that is not really possible with two children without a second car in Oberhausen, because the conditions there are stupid. Where we live, the buses only run every half hour. That's a huge problem. So at some point we said: We need a second car" (female interviewee with

two children living in Oberhausen; O6). This is also reflected by the number of cars per household and the number of public transportation tickets. While the number of cars increases in the outer resident locations, the number of public transportation tickets is higher in the center (Fig. 2). 31 households own at least one car (22 households own two cars, one owns three). The nine households with one car live in or near the centers of Oberhausen, Dinslaken, or Voerde. Hünxe is an exception because even in Hünxe's center, the interviewed families own two cars. Four interviewed families do not own a car at all. They live in Oberhausen's center, in Hünxe, and on the outskirts of Voerde. However, not owning a car is not a deliberate decision but rather owed to the financial restrictions those families face. Three of the four households that do not own a car have monthly public transportation passes. In the interviewed households that own one car, a monthly public transportation pass is purchased on a cost-benefit basis instead of a second car.

4.2 Mobility-related challenges

In nearly all interviewed families the car is used on a daily or almost daily basis. Most of those trips are owed to a combination of children being part of the household and both parents working. Since young children can neither stay alone nor are they

	Oberhausen (211,000 inh.)				Dinslaken (68,000 inh.)				Voerde (36,000 inh.)				Hünxe (13,600 inh.)			
		👨‍👩‍👧	🚗	🚌		👨‍👩‍👧	🚗	🚌		👨‍👩‍👧	🚗	🚌		👨‍👩‍👧	🚗	🚌
Center	O1	2	1	0	D1^{S}	1	1	0	V1	3	1	2	H1	5	2	0
					D2	3	1	0	V2	3	1	2	H2	2	2	0
	O2^{L}	3	0	2	D3	2	2	0	V3	3	2	0	H3	2	2	0
													H4^{L}	2	0	1
Close to the center	O3^{SL}	1	1	0	D4	1	3	0								
	O4	2	1	1	D5	2	2	1	V4	2	2	0	H5	3	2	0
					D6	2	1	0								
Edge of town	O5	3	1	0	D7	2	2	0	V5	3	2	0				
					D8	2	2	0								
	O6	2	2	0	D9	2	2	0	V6	2	2	0				
					D10	2	2	0	V7^{SL}	2	0	0				
	O7	2	2	0	D11	1	2	0	V8^{SL}	1	0	1				
					D12	2	2	0								
Out of town									V9	2	2	0	H6	2	2	0
													H7^{L}	3	2	0

👨‍👩‍👧 Number of children | 🚗 Number of cars | 🚌 Number of (parents') public transportation tickets | S = Single parent, L = Low-income family

Fig. 2: Sample of interview partners by municipality and residence location

mobile on their own, numerous mobility challenges arise, which can lead to mobility-based social exclusion. CHURCH et al. (2000) differentiated between time-based challenges (limited time budget, organization of everyday life, compatibility of family and work), economic challenges (costs of children and mobility, e.g., due to the perceived need to maintain two cars) and fear-based challenges (road safety and fear of crime). Additional challenges are physical barriers, e.g., during the phase when baby strollers are used and access to public transportation is restricted, or geographical and infrastructural challenges, e.g., when families live in a decentralized residential area and have long commutes.

All these challenges directly or indirectly impact families' mobility. In some households, these challenges lead to social exclusion. This is particularly true for carless, single parent, and low-income households, especially in those cases in which more than one of those situations are given. Our findings yield that while obligatory trips to work, school, etc. can be organized (partly with help of other family members), leisure activities often have to be cancelled. Carless households that do not live close to the center participate less often in social and sport activities since using other means of transportation takes too long: "I often visited relatives from out of town. We really were just traveling by car. And now you don't see the family that often. I haven't been to my husband's grave for a while either. I've been to every birthday, no matter where. I was always there. Now I don't. Now I often use the excuse: Oh, they're in school for so long. And then by bus? Nah!" (female interviewee with two children living in Voerde; V7). Single parents either have to reduce their scope of work (which results in financial restrictions) or are restricted in their time budget (which results in the parent participating less in social activities): "I just don't have the opportunity to leave the house in the evening to go to the gym or meet a friend for a coffee. Unless they come here. I think that's a factor that I definitely can't integrate that well" (female interviewee with one child living in Dinslaken; D1). Low-income families have to save on their expenses. Some of the interviewed parents report that they cannot afford going to a restaurant or the zoo, do not join a sports club and sometimes even do not go to the doctor to safe money for fuel and medicine: "There are always expenses: Clothes that are suddenly too small. Then you also have the desire to have a car again. So, you also want to put some money aside. The pressure is high. The desires are big. […] Then you always want to do justice to everyone, but you still have to keep it small somehow. Then I spend more on that than on the bus. [...] I also cut back on things for myself: I buy much more for my children than for myself" (female interviewee with two children living in Voerde; V7).

Another challenge our interviewed families are confronted with are the operating hours of elementary schools and kindergartens. Most children in our sample are accompanied by one parent on their way to elementary school or kindergarten, which adds to parents' time budget. In Germany, childcare facilities typically offer a maximum of 45 hours of care per week, which contrasts to a typical 40 hours week for full time employment; making matters even more challenging is when commutes between childcare facilities and work places take longer than 30 minutes. Nearly half of those commutes are made by car, the other half by foot, while public transportation and riding a bicycle play a very limited role. Preferring the car over public transportation is mainly owed to neither having to deal with connecting between trains and busses nor waiting times (see example in Fig. 3) and the perception that taking the car lets parents be more flexible. Those challenges become even more pressing when not all children are brought to the same care facility. It is for those organizational reasons that interviewees who either do not own a car or whose access to one is restricted find it impossible for both parents to be employed full time.

The interviews revealed that in households with only one car, one parent - usually the part-time working mother - uses the car to commute to work while the other parent uses public transportation or a bicycle. The parent with the car is then mostly responsible for accompanying and caring for the children. This model is restricted by the questions, how far the other parent needs to commute and which alternative means of transportation are available. For households without an own car, it can be extremely time-consuming if places of daily life are too far for walking and are not well connected to the public transportation system. For example, one interviewee from Hünxe reports that due to poor transit connections and frequencies of departure, his work commute to Duisburg amounts to four hours a day and that, as a consequence, his involvement in childcare is very limited. Particularly with regard to leisure activities, mobility-related challenges can have a negative impact on social participation, a finding that is especially true for carless households. For example, a single parent interviewed without a car cited poor accessibility to public transportation as the reason why her daughter cannot regularly go to her swimming lessons.

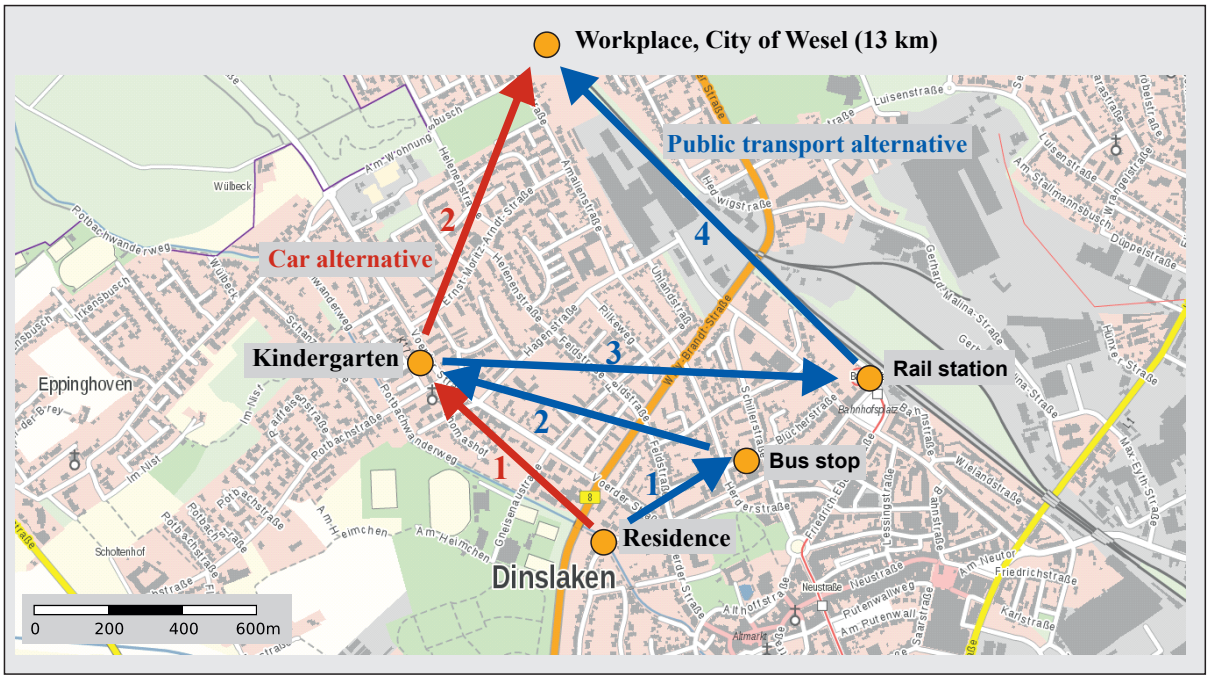

Fig. 3: Example of the complexity of trip chaining by public transportation and private cars (base map: TIM-Online – Geobasis NRW)

The occurrence of unexpected events is another aspect that parents find very challenging. The interviewees often mentioned that when a child falls ill and needs to be cared for at home, the working mother or father needs a flexible and time efficient means of transportation in order to leave the workplace and pick the child up from kindergarten or school early.

Overall, the interviewees often feel that their car-dependency is owed to work, childcare, the transportation system, and care facilities being inflexible. Work hours and places are often fixed and stationary and it is not uncommon for there being little leeway when it comes to working hours. Time is also an issue when it comes to operation hours of childcare facilities, which typically only offer two different five days a week time schemes: full-day care or the classic German time scheme from 7:30 a.m. or 8:00 a.m. until 12:00 p.m. or 1:30 p.m.

4.3 Strategies to combine work and family life

In order to better combine work and family life, families apply different strategies. Our findings show that the interviewees have developed three, in their eyes efficient, strategies: using personal social networks, adjusting working hours, and increasing the availability and use of cars. Applying the strategies seems to be a family decision, although it is only the mother who adjusts her working hours.

Personal social networks play an important role in the everyday life of families with young children. Relatives such as the grandparent generation or parents' siblings but also neighbors and parents of other children are involved in taking care of the children. A total of 29 families, and thus almost all the interviewed families, have family ties in their closer surroundings. Depending on the health condition and the extent of the interviewees and relatives' professional situation, relatives are more or less integrated into the families' everyday lives. This involvement varies from relatives who only step in in an emergency, to relatives who spend a fixed day with the children each week, to daily care in the afternoon. On the one hand, these personal infrastructures enable families to manage their everyday lives without major restrictions, on the other hand, they tend to create a dependency on the networks. Families and single parents who do not own a car are particularly dependent on such networks. Carless families use networks to organize their grocery shopping and handling appointments at low cost. Single parents rely on their relatives to help take care of the children so that they can work full-time: "Without my parents, it wouldn't be logistically possible for me, because even though [my child] is already in all-day care, I wouldn't otherwise be able to pick her up by

five on the four days [that I work], because I'm not in Dinslaken before six" (female interviewee with one child living in Dinslaken; D1).

Parents cannot or do not always want to fall back on relatives to organize their everyday lives, instead they adjust their professional workload. The typical model in our West German case study is that fathers remain fully employed, while mothers reduce their working hours to 20 to 25 hours per week. Despite the fact that the number of working mothers in this case study is high, the considerable reduction of their working hours amounted to keeping with the traditional role distribution where the father is the main earner and the mother is mainly responsible for childcare. Even though several interviewed mothers expressed a desire for working more hours than they currently do, they often postpone their professional careers in favor of childcare. This might be different in East German cities, due to a higher amount of full-time working mothers (Destatis 2020).

Since the interviewees often remarked on the severe time constraints they find themselves under, many have decided to own two cars. Although owning two cars makes them independent from public transportation schedules, and thus increases their temporal and spatial flexibility, a sense of car dependency is created. This is particularly problematic for low-income families in decentralized residential areas who cannot actually afford a (second) car but who have one anyway because they feel the need. Therefore, they have to save on other expenses, e.g., leisure activities. With reference to the experienced car dependency, several interviewees expressed the wish to reduce the car-use in daily life and some of them even wish to give up one of the cars altogether. They name multiple aspects for why they rely on the car, e.g., time issues, flexibility, trip chaining, and the unreliability of other transportations modes: "My husband could theoretically - if it were just a matter of getting to work - ride his bike. But of course, he can't because he has the children in tow in the morning and then has to drop them off first. And that would be a distance where they would have to leave utopian early by bike [...] for them to be there at 7:45 a.m. when school starts" (female interviewee with 2 children living in Voerde; V1).

Irrespective of income, our interviewees use their cars regularly and they acknowledge that their car use significantly increased after their first child was born. Aside from reasons related to time budget restraints, were the necessary flexibility that comes with having small children, a strong habitualization of mobility patterns connected to stringently structured daily lives, convenience as well as costs and time expenditures for public transportation.

It is not only families' individual strategies that help to better combine family and careers, but also family-friendly employers are often mentioned as contributing factors by for instance offering flextime and working from home. Parents whose employers offer such possibilities report fewer difficulties in reconciling family and work.

5 Discussion

This paper provides empirical research on the compatibility of work and families with young children living in the Ruhr region. Despite a gender-specific alignment of employment in recent decades, we found large gender differences in the family context. Although the proportion of working mothers has significantly increased, they predominantly hold part-time positions, while fathers remain the family's main breadwinner. Conversely, mothers in most families are responsible for the main part of (unpaid) childcare work. In order to organize everyday life, many parents currently have no other option than to involve private social networks (especially grandparents) in childcare and/or to permanently (unwillingly) reduce one parent's working hours, while also having to rely more on using a car. What these strategies have in common is that they are more of a compromise than a first choice. This is especially prominent when considering that mothers would like to work (more) and to further their professional careers and that parents are dissatisfied with their perceived car dependency. Moreover, carless, low-income, and single parent families are more likely to be affected by social exclusion due to the mentioned challenges and especially in those cases in which the described adapting strategies cannot be applied. Our interviews clearly show that many parents are dissatisfied with the restricted opening hours of elementary schools and kindergartens, which impact family's mobility patterns as they feel the need to use a car to bring and pick up the children.

The insights we won by analyzing the data collected in the interviews allow us to point to two leverage points that would contribute to reducing the mobility challenges families with young children face. The first leverage point is concerned with the opening hours of kindergartens and elementary schools, the second one is concerned with the public transportation's infrastructure.

One source of pressure on families with young children, at least for those in West Germany, are

the opening hours of kindergartens and elementary schools. They are often limited to a maximum of 45 hours per week, but since many parents in our interview sample have long commutes between workplace and childcare facility, that is not enough. If childcare facilities were opened longer, for example for up to 50 hours per week, the burden on parents could be markedly reduced. Although parents want to spend as much time as possible with their children, the expansion of opening hours was suggested as an efficient and useful measure: "We have these constraints of these childcare hours. We are under very tight time restrictions. My husband has to work until 4 p.m. He can't actually pick up my daughter before 4 p.m. We had to make some sort of underhand arrangement with the school so that she could stay there longer. [...] I already have the highest hourly rate for my children at 45 hours. But that's really only possible if your job is around the corner" (female interviewee with two children living in Voerde; V6). Many parents mentioned that it would be helpful if more than the two childcare time schemes were available, namely if all-day care could also be booked for individual days of the week.

The second leverage point would be to initiate changes in the transportation infrastructure. The reasons why the majority of interviewed parents commute by car instead of using public transportation are manifold. Not only does using public transportation limit one's spatial and temporal flexibility but typically long connecting times must be factored in, which leads to those commutes being perceived as significantly longer than by car. Other major restrictions are the lack of reliability and frequency of connections, especially in the smaller municipalities in our sample. In order for public transportation to take the place of commuting by car, those perceived shortcomings would have to be improved. If they were improved families with young children could consider public transportation as an alternative means of transportation in their daily lives.

An attractive public transportation infrastructure could also reduce the feeling of being car-dependent. This is an important aspect not only with regard to families' mobility but also with regard to establishing a more sustainable transportation system. Since transportation is currently highly dependent on non-renewable energy sources (EIA 2016), scientists and politicians are calling for transforming the transportation sector (Agora Verkehrswende 2017; European Commission 2011; Pastori et al. 2018). Next to technical innovations, this transformation is dependent on the population to change its mobility patterns, i.e., to complete a modal shift from using the car to other, more eco-friendly means of transportation. Our study clearly shows that families with young children, who currently are the most mobile population group, are more than willing to make that shift and to reduce the number of cars in their household. The only reservation we found in our interviewed sample was that the potential to being able to socially participate should not be negatively affected. However, many parents also wish to cycle more often but only use the bicycle as a means of transportation when they are not accompanying children. This shift to more sustainable modes of transportation can also include a shift from a car with combustion engine to an e-car, provided that they can afford the surcharge of the purchase.

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