

## Migrant-native differentials in the uptake of (in)formal childcare in Belgium: The role of mothers' employment opportunities and care availability

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### Abstract

**Objective:** We explore migrant-native differentials and the role of migrant background in the uptake of childcare. We differentiate between formal care (crèche and day mothers), informal care (family members and friends), and arrangements combining formal and informal care. We control for the socio-demographic characteristics of households, women's labour market opportunities, the availability of local childcare, and the presence of close kin as a proxy for informal care supply.

**Background:** Belgium is among the European countries with the highest availability of formal childcare, but maternal employment and the uptake of childcare are substantially lower among migrant populations than they are among native Belgians.

**Method:** Combining linked microdata from the 1991 and 2001 censuses with contextual data on childcare availability at the municipality level, we use multinomial logit models to study childcare use and types of childcare arrangements among parents who had a young child in 2001. As access to childcare and maternal employment are endogenous, we use estimated probabilities of being employed to control for differences in employment opportunities between migrant and native mothers.

**Results:** We find that migrants, and particularly non-European migrants, were less likely to use a care arrangement than natives; and that these differences extended into the second generation. When childcare was used, migrants with a European background were, on average, more likely to use formal childcare, whereas non-European migrants were more likely to use informal care. We also find that controlling for differential employment opportunities explains a substantial share of the variation in migrant-native differentials in formal childcare uptake.

**Conclusion:** While differences in socio-demographic characteristics, labour market opportunities, and the availability of (in)formal care partially explain migrant-native differentials in childcare use, these differentials are shown to persist for specific groups even after controlling for these factors, and particularly for Turkish women.

**Key words:** Formal childcare, informal childcare, migrants, maternal employment, childcare availability



## 1. Introduction

While previous research for several European countries has shown that migrants are less likely than native-born parents to use formal childcare<sup>1</sup>, knowledge about the extent of migrant-native differentials in formal childcare uptake by country of origin or migrant generation is still lacking, and the literature that has addressed the potential causes of these migrant-native differentials remains very limited. The lower uptake of formal childcare among migrants is problematic for at least two reasons. First, there is evidence that enrolment in formal childcare can be particularly beneficial to disadvantaged families because it can support children's development by, for example, improving their school readiness and language skills (Bradley & Vandell 2007; Camilli, Vargas, Ryan & Barnett 2010). It has also been shown that when care is of high quality, enrolment in childcare can have long-term positive effects on children's development (Esping-Andersen et al. 2012). Second, for families, having access to childcare can facilitate maternal labour market participation, which may, in turn, increase the household income, and limit the risks of poverty and social exclusion (Bauernschuster & Schlotter 2015; Nollenberger & Rodriguez-Planas 2015; Uunk, Kalmijn & Muffels 2005). It is worrying that the groups who might benefit most from formal care seem to use it less. It is, therefore, crucial to gain insight into the mechanisms that underlie this pattern. To address these issues, this paper will investigate the extent of migrant-native differentials in the uptake of formal and informal childcare in Belgium, distinguishing between migrant mothers and second generation mothers with a migrant background, from different countries of origin. We will examine how mothers' employment opportunities, as well as differences in care availability, contribute to these variations.

In the literature on migrant-native differentials in the uptake of formal childcare, several explanations for these discrepancies have been put forward. In addition to pointing to a lack of knowledge about the childcare system (Vandenbroeck, De Visscher, Van Nuffel & Ferla 2008) and preferences for mother-centred care or informal care among migrants (Seibel & Hedegaard 2017), researchers have attributed these differentials to regional variations in childcare access (Burchinal, Nelson, Carlson & Brooks-Gunn 2008; Vandenbroeck et al. 2008) and to the precarious labour market positions of migrants (Bonizzoni 2014; Wall & Jose 2004). However, as the empirical evidence for these explanations remains limited, this study seeks to contribute to the current understanding of migrant-native differentials in formal childcare uptake in three ways.

First, we investigate whether the lower formal childcare uptake among migrants can be explained by differences in local access. Regional variation in formal childcare coverage has been found to systematically exclude certain groups from using formal care. For the US, it has been shown that the availability and the quality of formal childcare tend to be lower in disadvantaged neighbourhoods, and that ethnically diverse communities are disproportionately affected (Burchinal et al. 2008). Similarly, there is evidence that the

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1 The uptake of formal childcare arrangements is substantially lower among the migrant than the native population in Belgium (Hedebouw & Peetermans 2009). Lower uptake of formal childcare among migrants has also been reported in Germany (Schober & Spiess 2013), Ireland (Roder, Ward & Frese 2018) Norway (Ellingsæter, Kitterød & Lyngstad 2017), Finland (Tervola 2018), and Denmark (Seibel & Hedegaard 2017).

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lower uptake of formal care among ethnic minorities in Brussels is related to the lower availability of childcare facilities within their neighbourhoods (Vandenbroeck et al. 2008). The historic settlement patterns of migrants in Belgium have resulted in migrants being concentrated in specific cities and neighbourhoods (Kesteloot 1985). Hence, this paper will seek to answer the question of whether these settlement patterns combined with regional variation in formal childcare access explain migrant-native-differentials at the national level in Belgium.

Second, we address the question of whether the labour market positions of migrant groups are potential determinants of their lower uptake of childcare. Migrants, and especially non-EU migrants, are more likely than natives to be unemployed or in unstable, low-income employment characterised by flexible schedules, non-standard hours, and/or short-term contracts (Noppe et al. 2018; Rubin et al. 2008). These precarious labour market conditions also extend to second-generation migrants (Maes, Wood & Neels 2019). While it is clear that unemployment lowers the demand for childcare, flexible and short-term jobs can be difficult to combine with formal childcare, because childcare providers often lack flexibility, have restricted opening hours, and have long waiting lists that make it difficult to access care on short notice. For these reasons, women with precarious labour market positions may have difficulties gaining access to formal childcare. In addition, this insufficient access to formal childcare may prevent these women from participating in the labour force unless they have access to other care options, such as informal or paternal care. While qualitative research in Italy, Portugal, Finland, and France has highlighted the difficulties migrants in precarious labour market positions face in accessing formal childcare (Bonizzoni 2014; Wall & Jose 2004), a quantitative assessment of these challenges is currently lacking.

Third, we contribute to the literature by considering differences in access to and the uptake of informal childcare arrangements as potential explanations for migrant-native differentials in formal care use. Given their limited access to formal care arrangements, informal care could be an appealing solution to migrants with precarious labour market positions. Previous research conducted in the UK and the US has indicated that these affordable and flexible arrangements tend to be used by mothers with non-standard working hours, unstable employment, and limited income potential (Gray 2005; Vandell, McCartney, Owen, Booth & Clarke-Stewart 2003). However, access to informal care arrangements may vary by origin group and migrant generation. Whereas first-generation migrants often lack a wider social support network (Wall & Jose 2004), second-generation migrants are more likely to have access to informal care providers, especially grandparents. Given the lack of data on these arrangements, previous research has rarely addressed the question of whether migrants substitute formal with informal care. In this paper, we include information on maternal grandparents as a potential source of informal care. We simultaneously consider the uptake of and access to formal and informal care in order to assess whether differences in the uptake of and access to informal care can help to explain the migrant-native differentials in formal childcare use.

The Belgian case provides an interesting setting to study differences in formal childcare uptake by migration background. At least since the early 2000s, Belgium has had a strong tradition of providing formal childcare similar to that of the Scandinavian countries and France. Belgium met the Barcelona target of 33 per cent childcare coverage

for 0-3-year-olds in 2006, alongside a limited number of other countries (Scandinavian countries and France) (Population Council 2006). In addition, Belgium is among the 'old' migrant receiving countries in Europe, and thus has sizeable migrant communities from different countries of origin with specific historical settlement patterns (Kesteloot 1985; Rubin et al. 2008). Compared to other European countries, Belgium has one of the largest employment gaps between native women and women of non-European origin (Corluy 2014; Noppe et al. 2018; Rubin et al. 2008), which extends into the second generation (Maes et al. 2019; Noppe et al. 2018). Therefore, Belgium is a particularly relevant setting for investigating the question of whether differences in employment opportunities and access to formal childcare can help to explain migrant-native differentials in childcare uptake.

This study uses a unique data infrastructure in which linked individual-level microdata from the 1991 and 2001 Belgian censuses have been used to identify kinship networks that have been subsequently linked to contextual data on the availability of childcare at the municipality level. This data infrastructure provides us with the opportunity to conduct a nationwide and detailed assessment of migrant-native differentials in the uptake of both formal and informal care, while differentiating between origin groups and migrant generations. In addition, the data infrastructure allows us to determine to what degree migrant-native differentials in formal care use can be accounted for by differences in labour market positions, variation in local childcare availability, and differential access to informal care arrangements. Thus, the findings of this article will be of interest not only to policy-makers in Belgium, but also to policy-makers in other corporatist or liberal European nations where formal childcare has been recently expanded, and/or there are migrant-native gaps in labour market outcomes.

## **2. Belgian context**

### *2.1 Migration history in Belgium*

During the economic recovery after the Second World War, the Belgian economy needed additional unskilled labour (Lesthaeghe 2000; Van Mol & de Valk 2016). Between 1946 and the mid-1950s, agreements Belgium made with Italy, Spain, Greece, and Portugal resulted in a large influx of Southern European men into the country. In the early 1960s, Belgium additionally recruited large numbers of Turkish and Moroccan labour migrants. These labour migrants settled in regions with traditional industrial activities or in the major cities, typically areas with large secondary labour markets characterised by low wages, short-term contracts, part-time work, irregular hours, and weekend work. As a result of these settlement patterns and the high concentration of migrants in disadvantaged neighbourhoods, migrants in Belgium continue to have, on average, less access to services than the native-born population (Kesteloot 1985). After the immigration of non-European guest workers was stopped in 1974, Turkish and Moroccan migrants often settled permanently in Belgium. The immigration of Turkish and Moroccan nationals continued through family reunification policies, and through women joining

their husbands in Belgium. In the subsequent decades, substantial shares of second-generation Turkish and Moroccan migrants married partners from their country of origin (Corijn & Lodewijckx 2009), whereas this marriage pattern was much less prevalent among Southern European origin groups.

In 2001, the year of the census, second-generation migrants were mainly the children of these initial Southern European, Turkish, and Moroccan labour migrants, whereas large shares of the younger first-generation migrants were Turkish and Moroccan women who migrated to Belgium in the context of family reunification or marriage migration (MYRIA 2019). Many of the first-generation migrants of European origin had immigrated to Belgium after the abolition of intra-European borders in the early 1990s and the fall of the Iron Curtain (Van Mol & de Valk 2016). Immigration from the former colonies and protectorates (DR Congo, Rwanda, and Burundi) was very limited until the 1970s, after which growing numbers of asylum seekers and political refugees from these countries were admitted (Lesthaeghe 2000; Van Mol & de Valk 2016).

The socio-economic positions of EU migrants and non-EU migrants in Belgium are very different (Noppe et al. 2018). The overall employment rate of first-generation migrants from the EU is similar to that of natives, although Eastern European migrants in particular are more likely to be employed with short-term or irregular contracts (Noppe et al. 2018). In addition, compared to natives, Southern European migrants tend to have a lower educational attainment (MYRIA 2016) and more unstable employment patterns (Maes, Wood & Neels 2020). On average, non-EU migrants have lower socio-economic positions than both EU migrant groups and natives. Thus, compared to the native-born population, non-EU migrants have lower educational attainment and lower employment rates, and they are overrepresented in temporary and low-income jobs (Noppe et al. 2018).

Among all origin groups, employment is substantially lower among women than men, but this gender difference is especially pronounced among non-EU groups (Noppe et al. 2018; Rubin et al. 2008). Belgium has one of the largest employment gaps between native women and women of non-European origin (Corluy 2014; Rubin et al. 2008). In 2016, the labour market participation rate was around 43 per cent for non-EU migrant women, compared to 70 per cent for native-born Belgian women (Noppe et al. 2018).

On average, second-generation migrants perform better on the labour market than first-generation immigrants. However, second-generation migrants, and particularly Turks and Moroccans, are often less educated than natives, and are already disadvantaged from the start of their professional careers (Baert, Heiland & Korenman 2016), which leads them to have lower employment rates and more unstable labour market positions than natives (Maes et al. 2019). Additionally, women with a Turkish or Moroccan background tend to start family formation at younger ages than natives (Corijn & Lodewijckx 2009), which may prevent them from establishing a stable labour market position before they have children.

## 2.2 *Childcare in Belgium*

In Belgium, formal childcare starts at three months, and enrolment at this age is not uncommon. Mothers are entitled to three months of maternity leave, which can be extended with up to four months of full-time parental leave (RVA Dienst Studies 2014).

Childcare is provided in crèches (i.e., day care) or by day mothers (i.e., family care, which in most cases is provided by a single carer in her own residence). The standard opening hours for formal childcare facilities are from 6:30 am to 6:30 pm on weekdays (Hedebouw & Peetermans 2009). Children are legally entitled to enrol in free pre-primary education starting at the age of two years and six months (European Commission 2014), and, since the early 2000s, almost all children over age three in Belgium attend pre-school (OECD 2020). However, for children under age three, the demand for childcare is generally greater than the supply. As a result, parents are advised to start searching for formal childcare within the first weeks of pregnancy (MAS 2007). Due to the short supply, priority is given to dual-earner families, which is likely to disadvantage families with precarious and unstable labour market trajectories (MAS 2007).

The literature on formal childcare uptake usually cites availability, quality, and affordability as the three main institutional factors that influence the childcare decisions made by parents. With respect to the availability of childcare, Belgium had already met the Barcelona target of 33 per cent childcare coverage for children under three years of age in 2006 (Mills et al. 2014; Population Council 2006). However, there has been substantial regional variation in childcare coverage in Belgium. In 2001, the childcare coverage was on average 26 per cent for children between the ages of zero and three, but between the municipalities, childcare coverage varied between zero and 60 per cent (own calculations, not shown). The major cities, such as Antwerp and Ghent, had, on average, high levels of childcare coverage (38 and 26 per cent, respectively), but the municipalities of Brussels, as well as former industrial regions and towns, generally had much lower childcare coverage. In Brussels, childcare coverage varied considerably between different municipalities (from two to 37 per cent). In addition, former industrial cities, such as Charleroi and Liège, had, on average, low levels of childcare coverage (13 and 20 per cent, respectively). Thus, the supply of formal childcare available to migrant populations has depended heavily on their specific settlement patterns.

Formal childcare facilities are controlled by the regional agencies for 'Child and Family' in Flanders and 'Birth and Childhood' in Wallonia. While private childcare exists, most of these facilities voluntarily register with the agencies, and are thus subject to quality control (Hedebouw & Peetermans 2009). As a consequence, the quality of childcare in Belgium is generally high, and surveys among users indicate that most parents are very satisfied with the quality of the childcare these facilities provide (Hedebouw & Peetermans 2009; Vande Gaer, Gijssels & Hedebouw 2013; Vanpée, Sannen & Hedebouw 2000). In subsidised facilities, the cost of childcare is based on income. Additionally, childcare expenses are tax deductible. Compared to the other OECD countries, the impact of the cost of childcare on the income for a married couple has been found to be medium in Belgium (Immervoll & Barber 2006). But even though subsidised childcare is relatively widely available in the Belgian context, previous research has found that women with a migration background can still face barriers to accessing affordable childcare in Belgium (Elloukmani & Ou-Salah 2018).

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### 3. Theoretical framework

#### 3.1 *Differential employment opportunities*

When applied to childcare decision-making, rational choice theory focuses mostly on the micro-economic trade-off between the potential income gains from parental – mostly maternal – employment on the one hand, and the costs of childcare on the other. In addition to this trade-off, other factors are acknowledged to be relevant in such decisions, with parents being expected to make informed and reasoned assessments of the available services with respect to type, quality, and preferred hours. Thus, it is assumed that parents choose the childcare arrangement that best meets their preferences, while also taking into account their budgetary constraints and potential income gains, as well as the potential developmental gains for their child (for a review, see Blau & Currie 2006).

In most countries, there are large socio-economic differentials in the uptake of formal childcare (Pavolini & Van Lancker 2018; Van Lancker & Ghysels 2012 2016). Recent quantitative research on childcare uptake has typically explained the lower uptake of formal childcare among parents with lower socio-economic positions by drawing upon rational choice theory (Blau & Currie 2006; Havnes & Mogstad 2011; Nollenberger & Rodríguez-Planas 2015; Powell 2002). Because the potential income gains are generally lower for parents with lower socio-economic positions, they are expected to be less likely to use formal childcare. While this framework is fairly successful at predicting the childcare choices made by parents when considering changes in the price of childcare or potential income gains, the estimated price elasticities in these studies vary greatly (Blau & Currie 2006; Davis & Connelly 2005). Blau and Currie (2006) attributed these differences to an insufficient consideration of the endogenous relationship between childcare and maternal employment decisions, as well as the fact that informal childcare access is usually unobserved. The tendency of previous research to use observed employment positions both as a predictor and an outcome of formal childcare use (Jappens & Van Bavel 2012; Kahn & Greenberg 2010; Krapf 2014; Van Lancker & Ghysels 2012) is at least partly a reflection of the insufficient consideration of this endogenous relationship.

The relationship between maternal employment and childcare use is recursive. While the labour market positions of parents affect their demand for childcare, their use of childcare simultaneously affects the employment status of parents, and especially of mothers. For example, a mother with stable employment prior to childbearing is able to predict well in advance when she will be needing childcare, and how often. As a consequence, she can secure a spot in a childcare facility during early pregnancy, which may be necessary if there are long waiting lists for care. Thus, having a childcare arrangement in place will allow the mother to participate in the labour force. This recursive relationship between employment and childcare uptake may have very different consequences for mothers with more precarious employment positions. Although unemployed mothers may have less need for childcare because they can provide care themselves, having access to childcare is also a potential precondition to entering employment. Mothers with low employment opportunities are more likely to be employed in the secondary labour market, which is characterised by low pay, temporary work, and

non-standard working hours. Moreover, these mothers often have spells of inactivity, and then need ad hoc childcare when an employment opportunity presents itself. However, these jobs tend to be less compatible with the standard opening hours of formal childcare facilities, and ad hoc care is unlikely to be an option when there are long waiting lists for childcare. Not being able to organise childcare complicates the ability of these mothers to search for a job and participate in job interviews (Chaudry 2004). Previous research has shown that instability in employment and in childcare arrangements are closely related (Speirs, Vesely & Roy 2015). Mothers who experience changes in their working hours or employment situations usually have to make adjustments in their childcare arrangements. When these changes are unanticipated, they are more likely to end up with a temporary or less preferred arrangement. Conversely, care instability can hinder a mother's ability to remain employed (Chaudry 2004; Hofferth & Collins 2000). As a consequence, a mother with an unstable labour market position will be more likely to face barriers to accessing formal childcare, which may, in turn, affect her subsequent employment decisions.

Because of the difficulties mothers experience in combining formal childcare arrangements and irregular employment, it is often suggested that informal care can function as an alternative or a complement to formal care, since it is more affordable and more flexible, and may be more readily available for some groups. For the UK and the US, there is evidence that employed mothers with low income potential and non-standard working hours are more likely to use informal care (Gray 2005; Vandell et al. 2003). Research conducted in New Zealand showed that parents with non-standard hours often piece together a patchwork of formal and informal childcare arrangements (Moss 2009). Unfortunately, the uptake of both informal and formal childcare has rarely been studied simultaneously (Roder, Ward & Frese 2018; Verhoef, Tammelin, May, Rönkä & Roeters 2016). As a consequence, it is unclear to what extent mothers with precarious employment use informal care as an alternative to formal care.

Given the often disadvantaged socio-economic positions of migrants, the aforementioned mechanisms may partially explain the migrant-native differentials in childcare uptake, as migrants are overrepresented in the secondary labour market in most European countries (Rubin et al. 2008). In Belgium, non-EU migrants and Eastern European migrants are more likely than natives to have precarious labour market positions (Noppe et al. 2018; Rubin et al. 2008). However, previous research on the extent to which socio-economic differences can account for migrant-native differentials in formal childcare use has been inconclusive. Studies for the US (Greenberg & Kahn 2012; Kahn & Greenberg 2010), but also for Sweden, Finland, and Western Germany (Krapf 2014), found no significant migrant-native differences after controlling for socio-economic characteristics, such as maternal employment, income, and maternal education; although small migrant samples have been mentioned as a potential explanation for these findings. In contrast, studies for the US and Ireland (Fram & Kim 2008; Liang, Fuller & Singer 2000; Roder et al. 2018) were not able to fully explain these differences when only socio-economic characteristic were considered. Qualitative research on low-wage mothers in New York indicated that due to their unstable labour market positions, migrant mothers often resort to temporary childcare arrangements, such as informal care, before gaining access to their preferred arrangements (Chaudry 2004). Although relatively little is known about informal childcare use in migrant populations, it has been shown that Eastern



European parents in Ireland are less likely than natives to use informal care (Roder et al. 2018). In addition, there is qualitative evidence that informal care is not a regular childcare arrangement among first-generation migrants (Wall & Jose 2004).

*We expect to find that migrant-native differentials in the uptake of childcare can be explained in large part by differences in employment opportunities. The lower employment opportunities of most migrant groups (especially non-EU migrants) are expected to provide a demand-related explanation for the lower uptake of both formal and informal childcare (hypothesis 1a).*

*We expect to find that differences in employment opportunities, in addition to the demand for childcare, influence the type of childcare used. Informal childcare is more compatible with part-time employment, unstable jobs, and unpredictable hours, which are difficult to combine with formal care. We therefore expect to find that the lower uptake of formal care among migrants can be explained in part by differences in employment opportunities (hypothesis 1b).*

## 3.2 The availability of and access to formal and informal care

### 3.2.1 Local childcare availability

Previous research has shown that there is substantial spatial variation in the availability of formal childcare, and that formal childcare is often less available in disadvantaged neighbourhoods (Burchinal et al. 2008; Vandebroek et al. 2008). Therefore, differences in the local availability of childcare may drive the unequal uptake of formal childcare among migrants and natives, particularly given that historical settlement patterns of migrants in Belgium have resulted in a higher concentration of migrants in disadvantaged neighbourhoods (Kesteloot 1985). In the Belgian context, some migrant groups have remained concentrated in the former industrial regions, which are characterised by a lower availability of childcare. In addition, previous research has found that migrants in the Brussels capital region are less likely than native-born residents to have access to formal childcare within their neighbourhood (Vandebroek et al. 2008).

Limited local childcare availability may also affect migrants differently than native-born parents. When the availability of formal care is very low and demand exceeds supply, long waiting lists occur. The more severe these shortages are, the more likely it is that parents with limited institutional knowledge and skills to navigate the childcare system effectively will be impacted. Previous research has reported that strong socio-economic differentials in uptake emerge when childcare availability is limited (Van Lancker & Ghysels 2012 2016). Therefore, the complexity of the childcare system and the existence of waiting lists may prevent certain groups from gaining access. Parents' skills in navigating the childcare system are not equal, and having perfect access to information seems unrealistic in practice. Studies have shown that migrants and lower educated mothers in particular are likely to lack the knowledge needed to successfully navigate childcare services (Chaudry 2004; Vandebroek et al. 2008; Vincent, Braun & Ball 2010). Research conducted in Belgium found these mothers use fewer sources of information (i.e., friends, family, state organisations, municipality, or other sources) (Vandebroek et al. 2008), while research carried out in Germany indicated that these mothers do not seem to take various indicators of childcare quality into account to the same extent as mothers without

a migration background and/or higher educational qualifications (Stahl, Schober & Spiess 2018). These differences tend to be exacerbated for first-generation migrants, who usually lack an extensive network that could provide them with information on childcare services or job opportunities (Bunning 2017; Ryan 2007; Wall & Jose 2004). A study conducted in Germany found that when childcare slots are limited, migrant women seem to be less successful in gaining access to formal childcare (Bunning 2017).

Most parents in Belgium agree that searching for adequate childcare is a difficult process (MAS 2007). Parents who start searching late are less likely to find a spot or an arrangement that meets their requirements (e.g., preferred starting date, number of days) (MAS 2007). There is evidence that lower educated parents and parents with a migration background start searching significantly later than higher educated parents (MAS 2007; Vandenbroeck et al. 2008). As a consequence, parents with a migration background are more likely to be in a situation in which they need to manage childcare by temporarily stopping work, reducing their working hours, refusing new job opportunities, or resorting to informal care arrangements.

*Because of the specific settlement patterns of migrant groups and their overrepresentation in disadvantaged neighbourhoods, we expect to find that the lower uptake of formal childcare in some groups can be explained in part by spatial variation in the availability of formal childcare (hypothesis 2).*

### 3.2.2 Informal childcare access

Social networks not only provide information on childcare, they are also potential sources for informal childcare provision. First-generation migrants usually lack a network that could provide informal care (Bunning 2017; Ryan 2007; Wall & Jose 2004). While friendship networks can provide occasional and ad hoc crisis support, they cannot substitute for formal childcare or sustainable informal care (Ryan 2007; Wall & Jose 2004). Thus, for many first-generation migrants, the lack of close family ties can make organising childcare difficult (Bargłowski, Krzyzowski & Swiatek 2015; Bojarczuk & Mühlau 2018; Wall & Jose 2004). Because migrant households have been found to be less successful in gaining access to formal childcare when there are supply shortages, having access to informal care plays a more important role in facilitating employment among migrants than among natives (Bunning 2017).

Compared to the first generation, second-generation migrants are more likely to have access to a wider social network, as well as support from grandparents. The grandparental generation of families with Turkish and Moroccan origin entered Belgium by means of labour migration. The women who came to join their husbands usually dedicated themselves to the organisation of the household, and had very low levels of labour force participation. Research has shown that unemployed grandparents, and particularly grandmothers, are more likely to provide grandparental care than their employed counterparts (Aassve, Meroni & Pronzato 2012; Hank & Buber 2009). However, grandparents may be less likely to provide care to several grandchildren, as this is considered too intensive (Douglas & Ferguson 2003; Gattai & Musatti 1999). Although little is known about informal childcare use among the second generation, the evidence

on the differential availability of kin suggests that they are more likely to have access to this type of care than their first-generation peers.

*We expect to find that the presence of maternal grandparents as a potential source of informal childcare will be an important factor in explaining the differences in the uptake of informal care between first- and second-generation migrants (hypothesis 3).*

## 4. Data and methods

### 4.1 Data

We used data from the 2001 Belgian census that cover the entire population legally residing in Belgium on 1 October 2001. The census questionnaire includes information on the uptake of formal childcare (crèche or day mothers), informal care (family or acquaintances), as well as care provided by household members. This information was used to distinguish four categories of childcare use: i) no childcare arrangement other than household members, ii) a formal childcare arrangement only (crèche or day mother), iii) an informal childcare arrangement only (family or acquaintances), or iv) a combination of formal and informal childcare arrangements (Table 1).

For the analysis, we used the mother as the unit of analysis, and we selected two-parent households in which the mother gave birth to her first child between 1 May 1999 and 1 July 2001, and did not have a second child at the time of the census in 2001. We selected one-child households for two reasons. If there were multiple young children in the household, we would not be able to tell which childcare arrangement was used for which child. Additionally, this approach sheds light on the childcare arrangements parents chose when they lacked prior experience. We further selected households in which the child was older than three months to exclude mothers on maternity leave; and was younger than 2.5 years old, as by this age, nearly all children in Belgium are enrolled in kindergarten, which would have affected the uptake of formal childcare in our study sample. Single-mother households were excluded from the selection because the census data do not indicate to what extent the children in these households were also cared for by the other parent.

With respect to migration background, we distinguished between first- and second-generation migrants. The first-generation migrants were not born in Belgium, while the second-generation migrants had at least one parent who was not born in Belgium. We distinguished between migrants originating from Belgium's neighbouring countries (Germany, France, Netherlands, Luxembourg), Southern Europe (Italy, Spain, Greece, Portugal, Cyprus, and Malta), Eastern Europe (Poland, Hungary, Latvia, Estonia, Lithuania, Czech Republic, Slovakia, Slovenia, Bulgaria, and Romania), and Morocco or Turkey. The other non-European migrant category consisted of a mix of relatively small groups of Latin American, Asian, and Sub-Saharan African migrants. The second generation of non-European migrants mainly consisted of migrants from an African country (Congo DRC, Sub-Saharan or other North African country).

#### 4.1.1 Explanatory variables

The hypotheses asserted that differences in employment opportunities, the availability of formal childcare at the local level, and the availability of informal care were among the factors that accounted for migrant-native differentials in childcare use. Given the recursive relationship between maternal employment and access to childcare, the analyses did not use the labour market position observed in the census. To assess the mothers' employment opportunities, we estimated their probability of being i) employed, ii) full-time employed, and iii) employed in flexible work (see the discussion of the modelling strategy).

Next, we included variables that measured the availability of both formal and informal care. Contextual data from regional agencies for 'Child and Family' in Flanders and 'Birth and Childhood' in Wallonia provided information on the local childcare coverage at the municipality level, which was operationalised as the number of places available per 100 children aged 0-3 years in the municipality. Because childcare is organised by different regional agencies, we added a regional control variable that distinguished between Flanders, Brussels, and Wallonia. The availability of informal care was measured by considering the presence of the maternal grandparents, since according to the literature, they are the most likely providers of informal care (Hank & Buber 2009; Wheelock & Jones 2002). We distinguished between cases in which 1) both the maternal grandmother and grandfather were living in Belgium; 2) only the maternal grandmother was living in Belgium; 3) only the maternal grandfather was living in Belgium; and 4) the maternal grandparents were either no longer alive or living in Belgium, or could not be traced in the data. The maternal grandparents were identified by linking the 2001 census to the 1991 census: i.e., to the extent that the mothers included in our analyses were still living with their parents in 1991, the grandparents could also be identified in the 2001 census. We were unable to identify any maternal grandparents in only 14 per cent of the cases. This meant that in these cases, the mother was no longer living in her parents' house in 1991, or her parents were no longer alive or living in Belgium. For the first-generation migrant women, it could be assumed that the maternal grandparents were not living in Belgium, and were therefore not available for care. However, we found the presence of grandparents for some of these women, likely because the women migrated when they were still children (1.5 generation). Among the second-generation migrant women, the share for whom no maternal grandparents could be identified was just 10 per cent.

#### 4.1.2 Socio-demographic control variables

The following control variables were included in the analyses, as previous research has indicated that they are related to childcare use: 1) educational level of the mother, 2) educational level of the father, 3) employment status of the father, 4) mother's age at first birth, 5) age of the child, 6) number of adults in the household, and 7) marital status. While research has shown that lower educated mothers are less likely to use formal childcare arrangements (Van Lancker & Ghysels 2016), the relationship between educational attainment and uptake of informal care is less clear. Some studies have found that among employed mothers, lower educated mothers are more likely to use informal childcare than higher educated mothers (Gray 2005). Conversely, other studies have

reported that mothers with higher educational attainment or income potential are more likely to use informal childcare (Ghysels & Van Lancker 2009; Neels & Theunynck 2012). We distinguished between five educational level categories: 1) no or primary education, 2) lower secondary education, 3) upper secondary education, 4) first cycle higher education, and 5) second cycle higher education (master's degree) and PhD. The educational attainment and employment position of the father are rarely addressed in the literature, but we included these characteristics as controls since unemployed fathers may be a source of care. The same categories of educational attainment that were used for mothers were also applied to fathers. We also distinguished between four employment status categories for fathers: 1) employed, 2) in education, 3) unemployed but searching, and 4) inactive. Age of the mother was included as a control variable, as previous research has shown that younger mothers are more likely to use informal childcare (Jappens & Van Bavel 2012). Care uptake has also been related to the age of the child, with parents being shown to be either less likely to use care or more likely to use informal care for younger children (Hank & Buber 2009; Igel & Szydluk 2011). The number of household members was included as a control variable, because compared to nuclear families, extended families have more potential to provide informal care, and have also been found to use informal care more often (Vandell et al. 2003). We also included the number of adults in the household, distinguishing between households with two (both parents), three (one additional adult), and four or more adults. Finally, we included marital status, distinguishing between married and cohabiting couples.

## 4.2 *Methods*

### 4.2.1 Modelling strategy

We used multinomial logistic regression to model migrant-native differentials in the uptake of childcare within the household, distinguishing between i) no childcare arrangement other than household members, ii) formal care, iii) informal care, and iv) mixed (formal and informal) childcare arrangements in 2001. We estimated five models that included different sets of explanatory variables in addition to the control variables. Model 1 only included the socio-demographic control variables (educational level of the parents, paternal employment, maternal age at first birth, age of the child, marital status, number of adults in the household), and documented what we refer to as the gross migrant-native differential in childcare use. Next, Model 2a documented the migrant-native differentials in the uptake of childcare, while controlling for overall maternal employment probability in addition to the socio-demographic control variables. Model 2b additionally included the probabilities of full-time employment and of being in a flexible work arrangement as well as the overall employment probability. In Model 3, we considered migrant-native differentials while controlling for differential local childcare coverage and added the regional control variable in addition to the socio-demographic control variables. Alternatively, Model 4 considered migrant-native differentials in childcare use while controlling for the differential availability of maternal kin in addition to the socio-demographic control variables. Finally, Model 5 considered migrant-native differentials in childcare use while jointly controlling for the socio-demographic profile,

employment opportunities, the local childcare availability, and the presence of maternal kin. To facilitate the comparison of migrant-native differentials across models, the exponentiated model coefficients were used to calculate the gross and adjusted deviations from the grand mean of childcare use by migration background. This method allowed us to compare the differences by migrant background that remained after controlling for different variables.

#### 4.2.2 Endogeneity of work and childcare

While working mothers use childcare to remain employed, having access to childcare is also a precondition for becoming employed. Because of this endogenous relationship between employment and childcare arrangements, we did not use the observed labour market position of the mother in the 2001 census in the analyses. Instead, we opted for a more robust indicator of employment probability that was not affected by childbearing or access to childcare. More specifically, we estimated the employment probabilities of childless women as a function of the socio-economic characteristics that were relevant for their employment opportunities, and subsequently assigned these probabilities of labour market participation to women who recently had their first child, but who otherwise had the same socio-economic profile in order to avoid the problem of reverse causation. Because we focused on women who recently had their first child, the bias associated with comparing these mothers with childless women with similar ages and socio-economic characteristics is assumed to be limited, given that just before childbearing, they likely had similar employment prospects. Three indicators of mothers' employment opportunities were included in the analysis. We estimated i) the probability of being employed (versus not employed), ii) the probability of being full-time (versus part-time) employed, and iii) the probability of having a flexible work arrangement. Full-time employment was defined as working at least 38 hours a week. Flexible employment was defined as flexibility on the part of the employee, such as temporary employment, working irregular hours, or working in shifts. The various employment probabilities were estimated as a function of following six socio-demographic characteristics: 1) age (linear and squared effects); 2) a detailed measurement of educational level with 19 categories (18 dummies); 3) nationality (eight categories, distinguishing between i) Belgians, migrants from ii) the neighbouring countries of Belgium, iii) Southern Europe, iv) Eastern Europe, v) other EU, vi) Morocco, vii) Turkey, and viii) other non-EU); 4) generation (first versus second generation); and 5) marital status (married or unmarried). Additionally, we controlled for 6) municipality (588 dummies representing 589 municipalities), which was used as a proxy for local labour market conditions. Previous research (Neels & Stoop 2001) has indicated that the returns of educational level vary by migration background (origin and generation), and by the household position in combination with migration background. Thus, we included two-way and three-way interactions between education, nationality, and generation; as well as two- and three-way interactions between nationality, generation, and marital status.

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## 5. Results

### 5.1 Descriptive results

The uptake of different care arrangements – none, formal, informal, or mixed – differed substantially between natives and migrants, but also between migrants of different origin groups (see Table 1). Overall, only 16 per cent of the native Belgian mothers did not have any care arrangement, and arranged care completely within the household. All migrant groups were more likely than the native mothers to have no care arrangement, and there were clear differences between EU and non-EU migrants. With the exception of first generation women from Eastern Europe, between 20 and 35 per cent of the mothers with a EU background did not have a care arrangement. In contrast, between 46 and 66 per cent of the mothers with a non-EU background did not have a care arrangement. However, just 25 per cent of the second-generation other non-EU migrant mothers did not have a care arrangement. In all of the migrant groups, the probability of not having a care arrangement was lower among the second generation than among the first generation.

When we examined the type of childcare strategy that was adopted, the differences between EU and non-EU migrants were again found to be very pronounced. The results showed that, among natives 45 per cent of all mothers relied exclusively on formal care. In contrast, among the EU origin groups between 28 and 60 per cent relied only on formal care. Among the European origin groups, the uptake of formal care was typically lower in the second than in the first generation, except in the second generation of Eastern European mothers. Conversely, we found that among all of the EU origin groups, the uptake of informal care was higher in the second than in the first generation, which was likely related to their better access to informal care providers such as grandparents. Compared to natives and mothers with a EU origin, the use of formal care was generally lower among mothers with a non-EU origin, at levels between 10 and 20 per cent among mothers with a Turkish or Moroccan background, and at levels more similar to those of EU migrants among mothers with a non-EU background other than Turkey or Morocco (34 and 42 per cent of the first and second generation, respectively). The uptake of formal care was slightly higher among Moroccan than Turkish mothers, with 13 and 18 per cent of the first- and second-generation Moroccan mothers using formal care, compared to 9 and 11 per cent of the first- and second-generation Turkish mothers. When Turkish and Moroccan mothers relied on childcare, they were more likely to use informal care. It is, however, relevant to note that the prevalence of informal care use was not substantially higher among these mothers than it was among groups with a EU origin.

Whereas the descriptive statistics showed clear variation in childcare use between origin groups and by migrant generation, it is unclear whether and, if so, to what extent the migrant-native differentials could be accounted for by differences in employment opportunities, the local availability of formal childcare, or the availability of informal care providers. With respect to these factors, the descriptive results indicated that the availability of formal childcare differed between origin groups, with native Belgian mothers having better overall access to formal care within the neighbourhood. With

respect to the availability of informal care providers, second-generation migrants were more likely to have one or both grandparents present, which implies that they may have had greater access to informal care. Finally, the estimated employment probabilities were considerably lower for groups with a non-EU origin than for natives and migrants with a EU background. Compared to natives, all of the migrants were less likely to be full-time employed and were more likely to be in a flexible employment arrangement, with the exception of other EU migrants (both first- and second-generation). In the next section, we will analyse whether and, if so, to what extent these characteristics affected and explained the observed migrant-native differentials in childcare arrangements.

*Table 1: Childcare arrangement and socio-demographic characteristics by migration background, among two-parent households with one child born between 1 May 1999 and 1 July 2001.*

	Belgium	1st gen neighbours	2nd gen neighbours	1st gen S-EU	2nd gen S-EU	1st gen E-EU	2nd gen E-EU	1st gen other EU
<b>Migration background</b>								
N	57528	2328	2273	921	3203	834	475	369
%	76.47	3.09	3.02	1.22	4.26	1.11	0.63	0.49
<b>Care arrangement</b>								
No care	16.06	26.59	20.94	35.18	26.76	46.40	21.89	27.64
Informal	28.69	19.93	29.74	21.50	39.43	20.74	33.05	7.59
Formal	45.45	47.12	40.83	38.44	27.79	29.26	37.26	60.16
Both	9.80	6.36	8.49	4.89	6.03	3.60	7.79	4.61
<b>Maternal education</b>								
No & PE	2.05	5.71	2.29	18.24	3.25	12.23	2.53	5.69
Low SE	8.38	14.35	12.32	20.09	15.39	17.03	11.37	5.69
High SE	35.03	29.94	36.16	26.82	42.90	32.37	34.32	17.34
Short HE	39.02	27.62	35.50	16.50	30.69	19.30	39.79	33.60
Long HE	15.52	22.38	13.73	18.35	7.77	19.06	12.00	37.67
<b>Paternal education</b>								
No & PE	3.89	7.31	5.09	15.52	6.34	10.49	5.27	6.25
Low SE	14.90	16.61	18.28	22.51	24.50	22.32	20.25	6.79
High SE	39.26	29.58	39.04	27.10	41.47	32.45	37.97	15.76
Short HE	24.10	19.98	21.87	14.64	19.23	16.28	21.31	26.36
Long HE	17.85	26.51	15.71	20.22	8.47	18.46	15.19	44.84



*Table 1:* Childcare arrangement and socio-demographic characteristics by migration background, among two-parent households with one child born between 1 May 1999 and 1 July 2001 (continued).

	2nd gen other EU	1st gen Morocco	2nd gen Morocco	1st gen Turkey	2nd gen Turkey	1st gen other Non-EU	2nd gen other Non-EU	Total
<b>Migration background</b>								
N	165	1781	1291	761	755	2194	348	75226
%	0.22	2.37	1.72	1.01	1.00	2.92	0.46	
<b>Care arrangement</b>								
No care	19.39	66.14	49.96	64.78	54.97	45.94	25.29	21.23
Informal	22.42	19.43	29.43	24.31	30.86	16.27	24.14	28.03
Formal	52.12	13.08	17.74	9.20	11.13	34.18	41.67	42.08
Both	6.06	1.35	2.87	1.71	3.05	3.60	8.91	8.66
<b>Maternal education</b>								
No & PE	4.24	35.49	7.36	38.37	6.89	14.95	2.87	4.24
Low SE	8.48	20.10	22.00	22.73	28.48	14.31	10.92	10.27
High SE	30.91	27.57	51.20	31.01	55.10	28.35	35.34	35.08
Short HE	35.76	11.40	17.35	5.26	8.34	24.16	33.62	35.55
Long HE	20.61	5.45	2.09	2.63	1.19	18.23	17.24	14.86
<b>Paternal education</b>								
No & PE	7.88	27.55	23.44	27.34	28.63	11.32	9.30	6.00
Low SE	16.97	22.57	23.28	25.89	23.92	14.83	19.19	16.18
High SE	25.45	29.30	29.45	35.27	37.77	26.06	31.98	37.80
Short HE	25.45	13.12	16.02	7.53	6.59	21.30	16.57	22.64
Long HE	24.24	7.47	7.81	3.96	3.09	26.48	22.97	17.39

*Table 1: Childcare arrangement and socio-demographic characteristics by migration background, among two-parent households with one child born between 1 May 1999 and 1 July 2001 (continued).*

	Belgium	1st gen neighbours	2nd gen neighbours	1st gen S-EU	2nd gen S-EU	1st gen E-EU	2nd gen E-EU	1st gen other EU
<b>Paternal employment</b>								
Employed	95.90	92.57	94.76	88.95	91.90	84.79	89.10	90.19
Student	0.08	0.13	0.13	0.22	0.13	0.24	0.64	0.00
Unemployed	3.27	5.30	4.71	8.42	6.68	11.19	8.76	6.54
Inactive	0.74	2.00	0.40	2.41	1.29	3.77	1.50	3.27
<b>Marital status</b>								
Married	71.44	69.63	64.41	79.70	72.21	91.61	66.95	82.38
Cohabiting	28.56	30.37	35.59	20.30	27.79	8.39	33.05	17.62
<b>Number of adults in HH</b>								
0-2	98.65	97.77	98.46	95.66	97.85	96.40	98.53	98.10
3	1.17	1.63	1.32	3.26	1.90	2.52	1.47	1.36
4+	0.18	0.60	0.22	1.09	0.25	1.08	0.00	0.54
Age at 1st birth (mean)	28.13	29.51	27.28	29.78	27.56	28.29	27.87	32.00
Age child (mean)	1.01	1.03	0.99	1.06	1.05	1.03	1.04	0.98
<b>Childcare coverage municipality</b>								
Coverage (mean)	26.20	21.90	22.28	18.17	16.13	23.05	18.38	23.14
<b>Employment probabilities</b>								
Work (mean)	88.60	77.42	85.23	66.67	79.82	47.03	82.46	78.62
Full-time (mean)	65.50	58.76	61.75	55.81	53.59	53.64	59.74	73.15
Flex work (mean)	34.99	34.37	38.05	36.75	40.32	45.39	41.46	27.45
<b>Maternal grandparents identified</b>								
None	14.10	85.01	8.10	70.68	8.74	94.60	4.21	89.43
Both	66.84	9.62	71.89	21.28	71.81	3.36	73.05	5.69
Mother	15.14	4.68	16.19	6.41	15.39	1.92	18.11	4.34
Father	3.91	0.69	3.83	1.63	4.06	0.12	4.63	0.54

*Table 1:* Childcare arrangement and socio-demographic characteristics by migration background, among two-parent households with one child born between 1 May 1999 and 1 July 2001 (continued).

	2nd gen other EU	1st gen Morocco	2nd gen Morocco	1st gen Turkey	2nd gen Turkey	1st gen other Non-EU	2nd gen other Non-EU	Total
<b>Paternal employment</b>								
Employed	94.51	70.61	77.00	69.95	72.35	84.21	85.04	93.53
Student	1.83	0.46	0.86	0.27	0.70	1.07	0.88	0.16
Unemployed	3.05	21.58	20.02	23.58	22.91	10.93	12.32	5.09
Inactive	0.61	7.35	2.12	6.20	4.05	3.78	1.76	1.22
<b>Marital status</b>								
Married	67.88	97.75	94.50	98.55	98.01	89.47	72.99	73.64
Cohabiting	32.12	2.25	5.50	1.45	1.99	10.53	27.01	26.36
<b>Number of adults in HH</b>								
0-2	99.39	93.15	95.82	92.77	96.16	93.39	96.55	98.09
3	0.61	5.50	3.49	3.94	2.65	5.29	2.01	1.57
4+	0.00	1.35	0.70	3.29	1.19	1.32	1.44	0.34
Age at 1st birth (mean)	27.44	26.47	24.75	24.57	23.12	28.96	26.75	28.00
Age child (mean)	0.91	0.97	0.98	1.04	1.01	1.00	1.05	1.01
<b>Childcare coverage municipality</b>								
Coverage (mean)	23.51	18.00	16.69	19.79	20.06	23.22	20.20	24.72
<b>Employment probabilities</b>								
Work (mean)	87.23	29.22	56.15	23.97	52.97	43.88	79.99	82.64
Full-time (mean)	67.15	39.44	46.69	45.48	51.50	56.26	63.54	62.87
Flex work (mean)	29.13	53.09	48.85	44.91	53.64	43.17	40.06	36.64
<b>Maternal grandparents identified</b>								
None	7.27	77.48	6.74	78.32	5.70	85.41	12.07	21.78
Both	69.70	18.19	74.44	17.21	77.88	10.26	65.23	60.85
Mother	19.39	3.71	13.79	3.15	12.19	3.65	16.09	13.80
Father	3.64	0.62	5.03	1.31	4.24	0.68	6.61	3.57

Source: Belgian census 2001, calculations by authors

## 5.2 Results from multiple regression

### 5.2.1 Migrant-native differentials in care use

Figure 1 presents the adjusted deviations from the overall mean of childcare use by migration background. The odds ratios comparing migrant groups and generations in Models 1 to 5 – including different control and explanatory variables – were reported as

percentage point differences from the grand mean. The weighted grand mean of overall care use indicated that 79 per cent of our selected mothers relied on a care arrangement other than household members, whether formal childcare, informal childcare, or a combination of the two.

In Model 1, only the socio-demographic control variables were included to control for composition effects. In line with previous findings, the model estimates indicated that educational attainment increased the probability of using childcare; and that the probability of using childcare was higher among women who were older when they had their first child, and among women who had an employed partner (results included in the Appendix). Conversely, the model estimates showed that women who had a co-resident partner who was unemployed or searching for employment had a lower probability of using childcare, as did women living in a household with additional adults. With the exception of first-generation Southern European and other European mothers, all of the migrant groups differed significantly ( $p < 0.001$ ) from the overall mean in terms of childcare uptake. Controlling for socio-demographic characteristics, the uptake of childcare was higher among natives and most EU origin groups, except among the first generation of Eastern European origin and other European origin. Native Belgian mothers still had a probability of using childcare that was 10 percentage points higher than the overall average. The uptake of childcare was significantly lower among all of the migrant groups than it was among natives ( $p < 0.001$ ), except among the second-generation Eastern European mothers and other European mothers. The higher than average use of childcare observed among mothers of other European origin in the descriptive section was related to their specific socio-demographic profiles. Among mothers with a non-European background, a much lower than average uptake of childcare arrangements was still found after controlling for socio-demographic characteristics. The second-generation mothers of other non-European origin were the exception, and were similar to some of the European groups.

Model 2 included mothers' estimated *employment opportunities* in addition to the socio-demographic variables, and substantially changed the differential uptake patterns by migration background. Model 2a, which added the estimated probability of being employed to the model with the socio-demographic control variables, showed that the uptake of childcare increased significantly as employment opportunities increased ( $\Delta$ -2LL: 580.75;  $\Delta$ df: 3; p-value: 0.000). After the inclusion of the maternal employment probability, the migrant-native differentials were reduced among mothers of almost all migration backgrounds, except among first-generation Southern and other European mothers. In addition, a substantial reduction in differential care uptake was observed among second-generation migrants from the neighbouring EU countries and from other EU countries. The higher than average use of childcare found among these groups was strongly related to their better employment opportunities. By contrast, the lower use of childcare found among first-generation Eastern European mothers was clearly related to their lower employment opportunities. Particularly noteworthy are the reductions observed among non-European migrants. Controlling for differential employment opportunities reduced the deviation from the grand mean for first-generation Moroccans and Turkish mothers by about 12 percentage points. These results seem to indicate that the overall lower uptake of childcare in these groups, either formal or informal, was related to their lower overall

employment opportunities, which likely reduced their demand for childcare. Compared to Model 2a, Model 2b additionally controlled for the differential probabilities of being in full-time employment and flexible work arrangements, and thus further improved the model fit ( $\Delta$ -2LL: 1315.5;  $\Delta$ df: 6; p-value: 0.000). As flexible work arrangements and part-time work may be more compatible with informal care, and might therefore decrease the uptake of formal childcare, the association between flexible or part-time work arrangements and the overall uptake of childcare regardless of type is less straightforward to interpret. Additionally controlling for the probability of being in part-time work or flexible work arrangements did not substantially alter the differential uptake by migrant background discussed in the previous models, but these factors could play a more important role when considering the type of childcare.

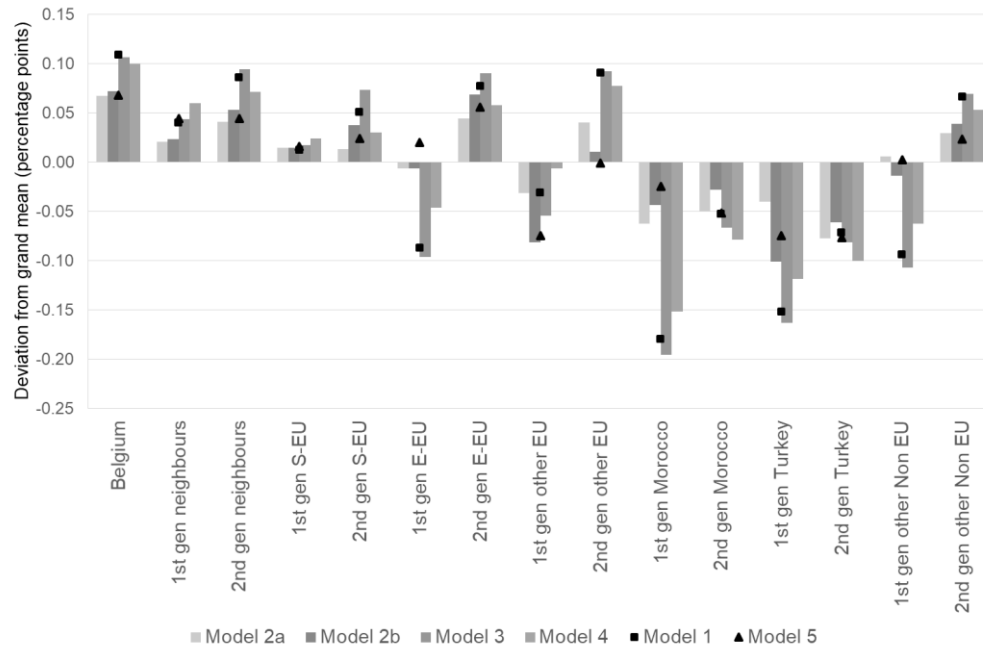
Model 3 investigated the relevance of the differences in the *availability of formal childcare* at the local level for the migrant-native differentials in childcare use discussed earlier. Including local childcare coverage (Model 3) in addition to the socio-demographic control variables (Model 1) significantly improved the model fit ( $\Delta$ -2LL: 2055.56;  $\Delta$ df: 9; p-value: 0.000). While childcare use increased significantly with increasing local coverage, the inclusion of this variable did not substantially influence migrant-native differentials in overall care uptake, as the changes in the differentials generally did not exceed two percentage points. Among the European origin groups, the second-generation Southern European mothers became slightly more likely than average to use care (around two percentage points). It is important to note that the inclusion of local childcare coverage could not account for the lower than average uptake of childcare among non-European origin groups.

In Model 4, the presence of maternal grandparents was controlled for as an indicator of *access to informal care*. Adding this predictor to the model with socio-demographic control variables only (Model 1) significantly improved the model fit ( $\Delta$ -2LL: 556.73;  $\Delta$ df: 9; p-value: 0.000). The availability of both maternal grandparents was positively associated with the uptake of childcare. Similarly, but a little less strongly, the availability of either the maternal grandmother or grandfather was also positively associated with the uptake of care arrangements compared to the situation in which no maternal grandparents were present. The migrant-native differentials in overall use of childcare were related to differential access to maternal grandparents, with the differentials changing, on average, between one and four percentage points. In line with our expectations, the differentials in childcare use were partially explained for first-generation migrants by the observation that, on average, these groups had less access to maternal grandparents as a potential source of informal care. This was the case not only for first-generation mothers of Eastern European and other European origin, but also for first-generation Turkish and Moroccan mothers.

Finally, Model 5 included all independent variables. Although in this model migrant-native differentials in overall care uptake were substantially reduced for most origin groups compared to the model containing socio-demographic control variables only (Model 1), some unexplained variation in childcare use persisted even after differences in employment opportunities and the availability of formal and informal care were accounted for. In addition to first-generation Southern European and other European mothers, some other groups were no longer significantly different from the overall mean after all of the variables were controlled for. This was found to be the case for first-generation Eastern

European mothers and second-generation other European mothers, as well as for first- and second-generation other non-European mothers. There were, however, some exceptions. The differences increased for first-generation other European mothers, and no differences were observed for first-generation mothers from neighbouring countries, first-generation Southern European mothers, second-generation Moroccan mothers, and second-generation Turkish mothers. Especially the Moroccan and Turkish mothers, as well as the first-generation other European mothers, continued to be less likely than natives to use any type of care. Only the second-generation Eastern European and other European mothers did not differ significantly from natives, which were the same groups as those identified in Model 1. However, second-generation other non-European mothers were barely significantly different from natives (p-value: 0.009).

*Figure 1:* Adjusted deviations from the grand mean in overall childcare use by migration background (grand mean = 0.79), Belgium 2001.



*Source:* Belgian census 2001, calculations by authors.

*Notes:* Model 1: socio-demographic control variables (educational level parents, paternal employment, age at first birth, age child, marital status, number of adults in the household); Model 2a: control variables and maternal employment probability; Model 2b: control variables and maternal employment probability, full-time employment and flexible work arrangements; Model 3: control variables and local childcare coverage; Model 4: control variables and presence of maternal kin; Model 5: full model.

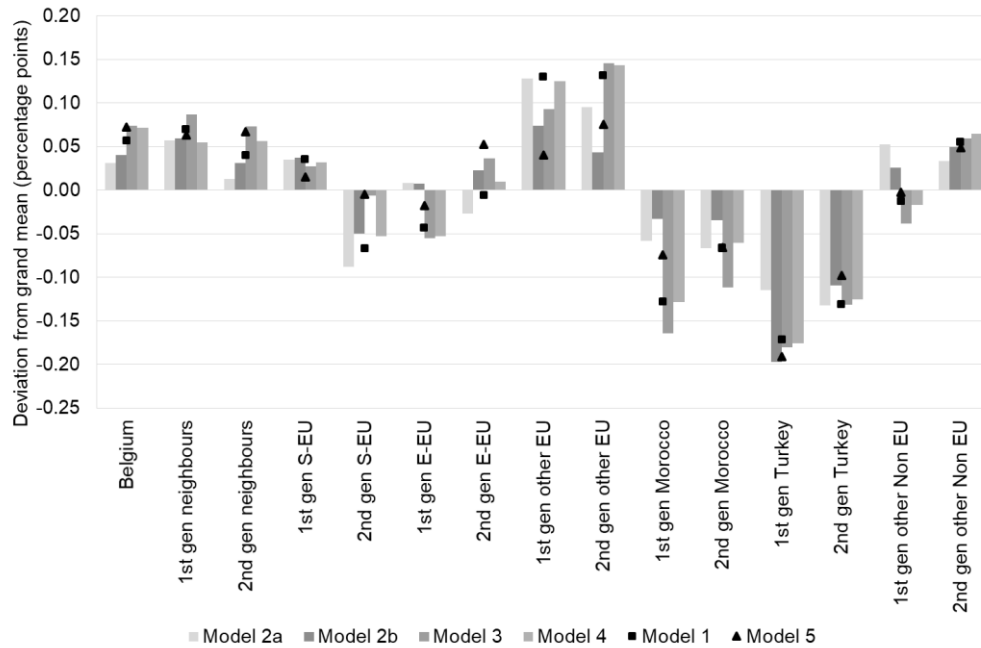
### 5.2.2 Migrant-native differentials in childcare uptake by care type

Figure 2 presents the adjusted deviations from the grand mean of formal care use. The weighted average of formal care use was 0.42, meaning that 42 per cent of the mothers in the analytical sample used formal care only. Controlling for different socio-demographic composition (Model 1), we see that there was variation in the uptake of formal care over the different migrant groups. While most mothers of European origin were more likely than average to use formal care, even after controlling for socio-demographic variables, second-generation Southern and Eastern Europeans were less likely to use formal care. When we look at non-European mothers, we see that first- and second-generation Moroccan and particularly Turkish mothers were less likely than average to use formal care, while second-generation mothers of other non-European origin were more likely than average to use formal care.

Including *differential employment opportunities* explained a considerable share of the variation in formal childcare uptake by migration background. In line with expectations, we found that the maternal probability of being employed was positively associated with the uptake of formal childcare, as opposed to using no childcare. After controlling for the probability of being employed (Model 2a), the differential uptake of formal childcare of several groups of European origin with respect to the grand mean diminished. This was found to be the case for native mothers, second-generation mothers from neighbouring countries, first-generation mothers of Eastern European origin, and second-generation mothers from other European countries. For these groups, the higher probability of being employed partially explained their higher than average use of formal childcare. In contrast, differentials compared to the grand mean increased for second-generation mothers of Southern and Eastern European origin. Controlling for their estimated employment probabilities, these groups had a lower than average uptake of formal childcare. As Model 2b showed, this finding was related to their overrepresentation in flexible work arrangements and part-time work. Including these factors reduced these differentials, and second-generation mothers of Eastern European origin became slightly more likely to use formal childcare compared to the overall mean. For the first- and second-generation mothers from other European countries, favourable employment opportunities explained a substantial part of their higher than average uptake of formal childcare.

For mothers of non-European origin, the lower uptake of formal childcare among first-generation Moroccan and Turkish mothers, as well as among mothers from other non-European countries, was strongly related to their lower employment probabilities. For first- and second-generation Moroccan mothers and second-generation Turkish mothers, their differentials with respect to the overall mean were further reduced after controlling for their differential probabilities of being in full-time employment or flexible work arrangements (Model 2b). For first-generation Turkish mothers, their differential probability of using formal childcare increased when additionally controlling for their differential probability of being in full-time employment or flexible work arrangements. For these groups, the inclusion of their estimated probabilities of being in flexible employment or full-time work offset the effect of their overall employment probabilities, which means that these groups were still less likely to use formal childcare after their differential employment positions were accounted for.

Figure 2: Adjusted deviations from the grand mean in formal childcare use (grand mean = 0.42), Belgium.



Source: Belgian census 2001, calculations by authors.

Notes: Model 1: socio-demographic control variables (educational level parents, paternal employment, age at first birth, age child, marital status, number of adults in the household); Model 2a: control variables and maternal employment probability; Model 2b: control variables, maternal employment probability and probabilities of full-time employment and flexible work arrangements; Model 3: control variables and local childcare coverage; Model 4: control variables and presence of maternal kin; Model 5: full model.

In Model 3, we considered the *differential availability of formal childcare* by including local childcare coverage in the model in addition to the socio-demographic control variables. This variable yielded varying results for the groups considered. For second-generation mothers of Southern and Eastern European origin, the lower uptake of formal care was related to the lower availability of formal childcare at the neighbourhood level. In contrast, the above average use of formal childcare among the first-generation mothers from other European countries was partially related to the greater availability of formal childcare in their neighbourhoods. Compared to Model 1, in this model, natives and mothers from neighbouring countries became slightly more likely to use formal care, which suggests that they were better at gaining access to formal childcare given local coverage levels. Accounting for local childcare access also increased the deviations in formal childcare uptake observed among Moroccan mothers and first-generation mothers of other non-European origin, but it did not seem to affect the differential uptake among Turkish mothers and second-generation mothers of other non-European origin. Contrary to our expectations (hypothesis 2), the differential local availability of formal care did not



explain the differential uptake of formal childcare, except among second-generation Southern and Eastern European mothers. The opposite pattern was observed for Moroccan and first-generation other non-European mothers, as they appeared to be less successful in gaining access to formal care given local coverage levels, even after controlling for differential employment opportunities (results not shown).

Model 4 controlled for the availability of maternal grandparents as an indication of *access to informal childcare* in addition to the socio-demographic control variables (Model 1) ( $\Delta$ -2LL: 556.73;  $\Delta$ df: 9; p-value: 0.000). The availability of the grandmother or both grandparents reduced the probability of using formal childcare rather than informal care, whereas the availability of only the grandfather increased the chances of using formal care (results included in the Appendix). For the European origin groups, controlling for the availability of grandparents in addition to the socio-demographic control variables slightly reduced the differentials in formal care use among first-generation mothers (as they were more likely to rely on formal care given their limited access to informal care), while it slightly increased the differentials among second-generation mothers (who typically relied somewhat less on formal care given their greater access to informal care). This was found to be the case among second-generation migrants from neighbouring countries and among migrants from Southern and Eastern European countries, but the changes in the differentials were typically limited to a few percentage points (zero to two). The differentials in formal childcare use among the non-European groups did not seem to be affected by the differential access to informal care as an alternative source of care. In sum, although the availability of informal care providers had a limited effect on the uptake of formal childcare, migrant-native differentials in the uptake of formal childcare could be accounted for by the differential availability of informal care providers to a very small extent only.

Finally, Model 5 included the estimated employment probabilities, the local coverage of formal childcare, and the availability of maternal grandparents in addition to the socio-demographic control variables. Overall, the differentials in the use of formal childcare by origin groups and migrant generation documented in Model 1 could be partially explained by jointly considering these factors. However, these findings mainly held for migrant mothers of European origin, and to some extent for first-generation mothers of Moroccan origin, but were much less applicable to mothers of non-European origin. The findings for Turkish mothers are particularly noteworthy, as they were far less likely than natives to use formal childcare, and none of the factors considered in the previous models seemed to account for these differentials. The differences between the outcomes of Model 5 (full model) and Model 1 (only socio-demographic controls) were limited because of the counteracting effects of employment opportunities and formal care availability. The inclusion of differential employment opportunities substantially reduced the differences between Moroccan women and natives, but in the full model, this effect was offset by the effect of formal childcare availability. These women had a lower uptake than would be expected given local coverage levels, and this pattern did not seem to be affected by their greater access to informal care.

## 6. Discussion and conclusion

Currently, there is some evidence that the uptake of formal childcare is lower among migrants than among natives in several European countries (Ellingsæter, Kitterød & Lyngstad 2017; Hedeboew & Peetermans 2009; Roder et al. 2018; Schober & Spiess 2013; Seibel & Hedegaard 2017; Teppers, Schepers & van Regenmortel 2019). However, knowledge about the extent of these migrant-native differentials by country of origin or generation is still lacking, and the literature that addresses the potential causes of these differentials remains very limited. To help fill this research gap, we described in this paper migrant-native differentials in childcare uptake in Belgium, while distinguishing between different origin groups and migrant generations. We simultaneously considered the uptake of formal and informal childcare, which has not previously been done in research on migrant-native differentials in the uptake of childcare; and we investigated three mechanisms that could explain the migrant-native differentials in childcare arrangements: i.e., differences in employment opportunities, the unequal availability of formal childcare at the municipality level, and the availability of potential providers of informal care.

Our detailed description of migrant-native differentials in childcare use indicated that all migrant groups were less likely to use childcare than native Belgian mothers. On average, migrants with a European background were more likely to have a care arrangement than non-European migrants, and particularly Turkish and Moroccan women. These migrant-native differentials extended into the second generation, although these mothers were generally more likely to use childcare than their first-generation peers. When childcare was used, migrants with a European background were, on average, more likely to use formal childcare, whereas non-European migrants, and particularly Turkish and Moroccan mothers, were more likely to use informal care. Second generation mothers with a migration background were less likely than their first-generation counterparts to use formal care.

Having established these migrant-native differentials in childcare use, we then investigated whether the differential uptake of childcare arrangements between natives and migrants could be explained by *differences in mothers' employment opportunities*. Previous research has shown that compared to other European countries, Belgium has one of the largest employment gaps between native women and women of non-European origin (Corluy 2014; Noppe et al. 2018; Rubin et al. 2008), which extends into the second generation (Maes et al. 2019; Noppe et al. 2018). Because employment positions and the use of childcare are endogenous, we estimated mothers' employment opportunities rather than considering their observed employment positions. In line with our expectations, we found that employment opportunities were an important factor in migrant-native differentials in the uptake of childcare, which confirmed hypothesis 1a. Restricted labour market opportunities explained a substantial share of the lower overall use of childcare arrangements, whether formal, informal, or a combination of the two. We were also able to (partially) confirm our second hypothesis (hypothesis 1b) that the overrepresentation in flexible work arrangements as well as the lower representation in full-time employment of some groups explained their lower access to formal care and their higher uptake of informal care. Eastern European, Moroccan, and first-generation other non-European

mothers in particular are overrepresented in part-time and flexible employment arrangements, which reduced their uptake of formal childcare.

The second mechanism we investigated was the role of the *differential availability of formal childcare at the municipality level*. Although the availability of formal childcare in Belgium is high from a European perspective, there is substantial local variation in childcare coverage in the country. Due to the historical settlement patterns of migrants, we expected to find that some migrant groups had lower access to formal childcare at the municipality level, which may have accounted for their lower uptake of formal childcare (hypothesis 2). However, our results indicated that the lower availability of formal childcare at the municipality level only partially explained the lower uptake of formal care among second-generation Southern and Eastern European mothers. Contrary to our expectations, we found that after controlling for local availability, the differentials increased for Moroccan and first-generation other non-European mothers i.e., they used formal childcare less than would be expected given the local availability of childcare arrangements. We found no differences for the other migrant groups.

Additionally, we investigated whether the *differential availability of informal childcare*, as an alternative to formal care, could explain the lower uptake of formal childcare for some origin groups. We hypothesised that this variable would largely explain the differences between first- and second-generation migrants, as the former group likely had more limited networks of close kin (hypothesis 3). While differential access to informal care explained some of the variation between the generations in the overall uptake of childcare, it only partially explained the differentials in the uptake of formal childcare. Moreover, while our findings suggested that the availability of maternal grandparents provided second-generation mothers with an alternative source of care, they did not show that formal care was substituted with informal care. In general, the inclusion of the differential availability of formal and informal care had limited effects in accounting for migrant-native differentials in formal childcare use.

Overall, our results highlighted that the unequal uptake of childcare by migration background was strongly related to differential labour market opportunities. Like parental leave (Kil Wood & Neels 2018), formal childcare was more accessible to parents with stable employment. This seems to indicate that there were strong Matthew effects, as parents with stable employment benefited disproportionately from having access to subsidised childcare (which was also tax-deductible). It also implies that the benefits of subsidised family policies were unequally distributed across the population (Ghysels & Van Lancker 2009). The lower uptake of formal childcare among non-native parents with lower socio-economic status is problematic because the use of formal childcare has been shown to improve the development of children (Bradley & Vandell 2007; Camilli et al. 2010; Esping-Andersen et al. 2012). Moreover, for families, having access to formal childcare can facilitate maternal labour market participation, which may, in turn, increase the household income and limit the risks of poverty and social exclusion (Bauernschuster & Schlotter 2015; Nollenberger & Rodríguez-Planas 2015; Uunk et al. 2005).

While labour market opportunities were shown to have a substantial influence on the uptake of childcare arrangements in general and formal childcare specifically, some unexplained differences remained, and even increased after considering local access. We need to gain a better understanding of the factors that prevent certain migrant groups

from using formal care despite local availability. Differences in preferences, norms, and values may help to explain these differences in childcare use. However, preferences should be handled with care, as they may reflect the opportunities that are available to individuals, and could, therefore, be endogenous (Kroska & Elman 2009). But given that previous research has indicated that there are differential preferences with respect to childcare between migrants and natives (Seibel & Hedegaard 2017), preferences may warrant further consideration. In particular, preferences may be potentially relevant for explaining the differential uptake of childcare among Turkish mothers, which was largely unaccounted for in our analyses. Additionally, previous research has illustrated the importance of differences in search behaviour, knowledge of the childcare system, and the influence of social networks in parents' childcare decisions (Chaudry 2004; Stahl et al. 2018; Vandembroeck et al. 2008; Vincent et al. 2010). Thus, these factors should also be considered.

Although this paper has documented migrant-native differentials in childcare use and has considered three potential explanations for such differentials, the analyses are subject to several limitations. While using the 2001 census allowed us to perform a detailed analysis of migrant-native differentials in childcare uptake by origin groups and migrant generations, and to assess various explanations for these differentials, it would be relevant to re-assess migrant-native differentials using more recent data. However, in contrast to the more recent 2011 census, the 2001 census includes self-reported information on the uptake of formal, informal, and mixed childcare arrangements at the household level, and can therefore provide valuable insights into variation in the childcare strategies used in different migrant populations, including hints about the mechanisms that shaped their childcare strategies. Although previous research has frequently considered the effects of the quality and the cost of childcare on childcare uptake, we were unable to take these two dimensions into account explicitly. However, given that most childcare facilities in Belgium are subject to quality control, we assume that variation in quality was a less important factor. Nonetheless, future research could consider this dimension in more detail. In addition, the cost of childcare facilities may be addressed more explicitly in future research, although we assume that the importance of this factor is likely to be larger in other settings given the subsidised nature of childcare in Belgium.

Finally, for a small subset of native mothers, we may have underestimated the effect of the presence of maternal grandparents because we could not identify the grandparents in the 1991 census, even though they might have been living in the country. However, taking the presence of grandparents into account is important, because they are a potential and even likely source of informal care. Moreover, while we only controlled for the grandparents' presence, other factors may be important to consider in future research, such as their health status, their distance from their grandchildren, and their total number of grandchildren. Particularly among the native population, grandparents today may be less available to provide childcare, as grandmothers are often employed themselves. Full data on descent and kinship in the more recent register-based censuses may provide new opportunities to model these factors.

## Acknowledgments

### Authors' contributions

NB prepared the literature review; conducted the data analyses; and drafted, reviewed, and finalised the manuscript. KN is responsible for data acquisition, the development of the predicted employment probabilities, and the presentation of the results. JW contributed to the consistency of the theoretical framework and the model specifications. Both KN and JW helped with the interpretation of the results and critically revised the paper. All authors read and approved the final manuscript.

### Funding

This research was funded by the research council of the University of Antwerp (TOPBOF Intergenerational Solidarity, 2016-2020), Federal Science Policy (Grant Number BR/165/A4/IMMIGBEL), and Research Foundation Flanders (Grant Numbers G032715N and 12ZA821N). The funders had no role in the study design, data collection, and analysis; in the decision to publish; or in the preparation of the manuscript.

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## Appendix

Table A.1: Full multinomial logit model – uptake of childcare arrangements by migration background in Belgium, 2001.

	No care vs. Informal		Formal vs. Informal		Mixed vs. Informal	
	RRR	P >  z	RRR	P >  z	RRR	P >  z
Migration background (ref. Belgium)						
1st gen neighbours	1.239	0.002	1.043	0.518	1.068	0.533
2nd gen neighbours	1.230	0.001	1.041	0.471	0.997	0.972
1st gen S-EU	1.341	0.003	0.867	0.156	0.983	0.923
2nd gen S-EU	1.094	0.074	0.704	0.000	0.695	0.000
1st gen E-EU	1.063	0.569	0.651	0.000	0.623	0.029
2nd gen E-EU	1.054	0.690	0.931	0.547	0.961	0.833
1st gen other EU	3.139	0.000	1.475	0.062	1.333	0.359
2nd gen other EU	1.702	0.033	1.155	0.495	0.723	0.369
1st gen Morocco	1.169	0.074	0.498	0.000	0.367	0.000
2nd gen Morocco	1.515	0.000	0.594	0.000	0.550	0.001
1st gen Turkey	1.200	0.090	0.281	0.000	0.327	0.000
2nd gen Turkey	1.621	0.000	0.529	0.000	0.533	0.007
1st gen other non-EU	1.315	0.001	0.765	0.002	0.746	0.051
2nd gen other non-EU	1.508	0.010	1.094	0.546	1.286	0.252
Maternal education (ref. no or primary)						
Lower secondary	1.186	0.005	1.050	0.490	0.904	0.401
Higher secondary	1.180	0.007	1.146	0.048	1.060	0.616
Higher education	0.974	0.729	1.743	0.000	1.563	0.001
Master or PhD	1.369	0.001	2.828	0.000	2.115	0.000
Married (ref. Married)						
Cohabiting	1.000	0.990	1.187	0.000	1.177	0.000
Age 1st birth	1.060	0.000	1.024	0.000	0.985	0.039
Age child	0.775	0.000	1.096	0.000	1.100	0.000
Number of adults (ref. 2)						
3	1.037	0.655	0.873	0.091	0.741	0.035
4+	1.051	0.775	0.887	0.514	0.812	0.514
Employment father (ref. employed)						
In education	1.553	0.108	1.431	0.211	1.405	0.443
Unemployed	1.756	0.000	0.882	0.019	0.821	0.034
Inactive	2.706	0.000	0.695	0.002	0.487	0.003

*Table A.1:* Full multinomial logit model – uptake of childcare arrangements by migration background in Belgium, 2001 (continued).

Paternal education (ref. no or primary)						
Lower secondary	0.822	0.000	0.949	0.316	1.082	0.377
Higher secondary	0.707	0.000	0.995	0.922	1.215	0.022
Higher education	0.813	0.000	1.432	0.000	1.588	0.000
Master	1.278	0.000	2.215	0.000	1.730	0.000
Maternal employment probabilities						
Employment prob.	0.986	0.000	0.993	0.000	0.996	0.033
Full-time prob.	0.990	0.000	1.011	0.000	1.006	0.075
Flex. work prob.	1.017	0.000	0.978	0.000	0.980	0.000
Childcare coverage	1.010	0.000	1.027	0.000	1.014	0.000
Region (ref. Flanders)						
Brussels	1.101	0.063	2.473	0.000	0.747	0.001
Wallonia	0.877	0.001	1.152	0.000	0.856	0.002
Maternal grandparents (ref. unknown)						
Both	0.595	0.000	0.663	0.000	0.977	0.654
Mother	0.719	0.000	0.859	0.000	1.066	0.296
Father	0.893	0.097	1.281	0.000	1.225	0.031
Constant	0.625	0.125	0.454	0.005	0.380	0.028

\* RRR = relative risk ratios

Source: Belgian census 2001, calculations by authors.

Table A.2: Multinomial logit models – uptake of childcare arrangements by migration background in (only migrant groups and constant shown) Belgium, 2001.

Migration background	Formal vs. none		Informal vs. none		Mixed vs. None	
	RRR	P> z	RRR	P> z	RRR	P> z
Belgium	ref.	ref.	ref.	ref.	ref.	ref.
1st gen neighbours	0.615	0.000	0.491	0.000	0.458	0.000
2nd gen neighbours	0.791	0.000	0.837	0.005	0.741	0.001
1st gen S-EU	0.494	0.000	0.460	0.000	0.351	0.000
2nd gen S-EU	0.474	0.000	0.881	0.007	0.445	0.000
1st gen E-EU	0.273	0.000	0.314	0.000	0.167	0.000
2nd gen E-EU	0.665	0.002	0.902	0.431	0.651	0.030
1st gen other EU	0.490	0.000	0.187	0.000	0.254	0.000
2nd gen other EU	0.981	0.931	0.710	0.164	0.552	0.108
1st gen Morocco	0.162	0.000	0.261	0.000	0.067	0.000
2nd gen Morocco	0.289	0.000	0.440	0.000	0.173	0.000
1st gen Turkey	0.148	0.000	0.335	0.000	0.109	0.000
2nd gen Turkey	0.221	0.000	0.452	0.000	0.200	0.000
1st gen other non-EU	0.289	0.000	0.260	0.000	0.169	0.000
2nd gen other non-EU	0.706	0.019	0.621	0.002	0.675	0.075
constant	1.103	0.303	0.783	0.011	0.174	0.000

Migration background	Formal vs. none		Informal vs. none		Mixed vs. None	
	RRR	P> z	RRR	P> z	RRR	P> z
Belgium						
1st gen neighbours	0.800	0.000	0.612	0.000	0.640	0.000
2nd gen neighbours	0.811	0.001	0.854	0.013	0.766	0.003
1st gen S-EU	0.741	0.001	0.652	0.000	0.584	0.001
2nd gen S-EU	0.537	0.000	0.978	0.648	0.522	0.000
1st gen E-EU	0.631	0.000	0.622	0.000	0.483	0.000
2nd gen E-EU	0.752	0.036	1.009	0.945	0.763	0.173
1st gen other EU	0.723	0.016	0.262	0.000	0.415	0.001
2nd gen other EU	0.962	0.865	0.699	0.149	0.540	0.097
1st gen Morocco	0.424	0.000	0.574	0.000	0.230	0.000
2nd gen Morocco	0.435	0.000	0.622	0.000	0.295	0.000
1st gen Turkey	0.390	0.000	0.733	0.003	0.373	0.001
2nd gen Turkey	0.320	0.000	0.606	0.000	0.323	0.000
1st gen other non-EU	0.736	0.000	0.563	0.000	0.549	0.000
2nd gen other non-EU	0.797	0.133	0.690	0.019	0.781	0.267
constant	1.245	0.022	0.870	0.153	0.203	0.000

Table A.2: Multinomial logit models – uptake of childcare arrangements by migration background in (only migrant groups and constant shown) Belgium, 2001 (continued).

Migration background	Formal vs. none		Informal vs. none		Mixed vs. None	
	RRR	P> z	RRR	P> z	RRR	P> z
Belgium	ref.	ref.	ref.	ref.	ref.	ref.
1st gen neighbours	0.772	0.000	0.605	0.000	0.642	0.000
2nd gen neighbours	0.862	0.019	0.872	0.031	0.823	0.031
1st gen S-EU	0.704	0.000	0.635	0.000	0.556	0.000
2nd gen S-EU	0.645	0.000	1.025	0.611	0.645	0.000
1st gen E-EU	0.596	0.000	0.620	0.000	0.445	0.000
2nd gen E-EU	0.938	0.637	1.041	0.759	0.937	0.745
1st gen other EU	0.512	0.000	0.240	0.000	0.286	0.000
2nd gen other EU	0.698	0.114	0.654	0.088	0.408	0.016
1st gen Morocco	0.461	0.000	0.593	0.000	0.249	0.000
2nd gen Morocco	0.489	0.000	0.636	0.000	0.333	0.000
1st gen Turkey	0.217	0.000	0.649	0.000	0.215	0.000
2nd gen Turkey	0.346	0.000	0.618	0.000	0.333	0.000
1st gen other non-EU	0.601	0.000	0.539	0.000	0.441	0.000
2nd gen other non-EU	0.824	0.202	0.694	0.021	0.789	0.289
constant	1.315	0.004	0.892	0.240	0.213	0.000

Migration background	Formal vs. none		Informal vs. none		Mixed vs. None	
	RRR	P> z	RRR	P> z	RRR	P> z
Belgium	ref.	ref.	ref.	ref.	ref.	ref.
1st gen neighbours	0.642	0.000	0.498	0.000	0.528	0.000
2nd gen neighbours	0.894	0.075	0.867	0.024	0.874	0.133
1st gen S-EU	0.491	0.000	0.485	0.000	0.479	0.000
2nd gen S-EU	0.639	0.000	0.934	0.161	0.651	0.000
1st gen E-EU	0.253	0.000	0.321	0.000	0.181	0.000
2nd gen E-EU	0.802	0.103	0.938	0.627	0.854	0.426
1st gen other EU	0.412	0.000	0.192	0.000	0.283	0.000
2nd gen other EU	1.008	0.971	0.722	0.185	0.616	0.190
1st gen Morocco	0.134	0.000	0.273	0.000	0.086	0.000
2nd gen Morocco	0.237	0.000	0.459	0.000	0.227	0.000
1st gen Turkey	0.137	0.000	0.333	0.000	0.120	0.000
2nd gen Turkey	0.211	0.000	0.444	0.000	0.210	0.000
1st gen other non-EU	0.256	0.000	0.269	0.000	0.192	0.000
2nd gen other non-EU	0.718	0.028	0.642	0.005	0.836	0.419
constant	1.302	0.006	0.735	0.002	0.156	0.000

Table A.2: Multinomial logit models – uptake of childcare arrangements by migration background in (only migrant groups and constant shown) Belgium, 2001 (continued).

Migration background	Formal vs. none		Informal vs. none		Mixed vs. None	
	RRR	P> z	RRR	P> z	RRR	P> z
Belgium	ref.	ref.	ref.	ref.	ref.	ref.
1st gen neighbours	0.717	0.000	0.704	0.000	0.688	0.000
2nd gen neighbours	0.778	0.000	0.807	0.001	0.715	0.000
1st gen S-EU	0.552	0.000	0.586	0.000	0.464	0.000
2nd gen S-EU	0.462	0.000	0.838	0.000	0.424	0.000
1st gen E-EU	0.326	0.000	0.480	0.000	0.269	0.000
2nd gen E-EU	0.640	0.001	0.845	0.198	0.610	0.012
1st gen other EU	0.574	0.000	0.271	0.000	0.387	0.000
2nd gen other EU	0.958	0.848	0.683	0.122	0.536	0.091
1st gen Morocco	0.185	0.000	0.353	0.000	0.095	0.000
2nd gen Morocco	0.284	0.000	0.424	0.000	0.168	0.000
1st gen Turkey	0.170	0.000	0.465	0.000	0.158	0.000
2nd gen Turkey	0.217	0.000	0.437	0.000	0.195	0.000
1st gen other non-EU	0.337	0.000	0.372	0.000	0.253	0.000
2nd gen other non-EU	0.698	0.016	0.620	0.002	0.676	0.076
constant	1.152	0.139	0.722	0.001	0.166	0.000

\* RRR = relative risk ratios

Source: Belgian census 2001, calculations by authors.



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## Information in German

### Deutscher Titel

Unterschiede zwischen Migranten und Einheimischen bei der Inanspruchnahme von (in)formeller Kinderbetreuung in Belgien: Die Rolle der Beschäftigungsmöglichkeiten der Mütter und der Verfügbarkeit von Betreuungsplätzen

### Zusammenfassung

**Fragestellung:** Wir untersuchen in diesem Beitrag die Unterschiede in der Inanspruchnahme von Kinderbetreuung nach Migrationshintergrund. Dabei unterscheiden wir zwischen formeller Kinderbetreuung ("crèche" und Tagespflege), informeller Betreuung (Familienangehörige und Freunde) und „kombinierte“ Arrangements informeller und formeller Betreuung. Wir kontrollieren für sozio-demographische Merkmale des Haushalts, mütterliches Erwerbsverhalten, regionale Kinderbetreuungsquoten und Verfügbarkeit von nahen Familienangehörigen als Proxy für informelle Betreuung.

**Hintergrund:** Belgien ist eines der europäischen Länder, das sich durch eine hohe Verfügbarkeit institutioneller Kinderbetreuung auszeichnet, wobei allerdings die Müttererwerbstätigkeit wie auch die Inanspruchnahme institutioneller Kinderbetreuung unter der Migrantenpopulation relativ niedrig ausfällt.

**Methode:** Als Datenbasis dienen Mikrodaten, die mit dem Zensus aus den Jahren 1991 und 2001 verbundenen wurden, die Informationen zu lokalen Kinderbetreuungsquoten enthalten. Als Methode wurden multinomiale Logit-Modelle geschätzt, wobei die abhängige Variable die Art des Betreuungsarrangements von Eltern abbildet, dessen jüngstes Kind im Jahr 2001 geboren wurde. Da Kinderbetreuung und Müttererwerbsverhalten endogene Prozesse sind, haben wir in den Modellen für das geschätzte Erwerbsverhalten nach Migrationshintergrund kontrolliert.

**Ergebnisse:** Die Analysen zeigen, dass vor allem nicht-europäische Migranten seltener Kinderbetreuungsarrangement nutzen als Einheimische, wobei sich diese Unterschiede auch in die zweite Generation forttragen. Wenn Kindebetreuung in Anspruch genommen wird, wählen europäische Migranten eher formelle, hingegen nicht-europäische Migranten eher informelle Arrangements. Die Unterschiede im Erwerbsverhalten erklären zu einem großen Teil die Unterschiede zwischen Migranten und Einheimischen in der Nutzung institutioneller Betreuung.

**Schlussfolgerung:** Während sich die Unterschiede in der Kinderbetreuungsnutzung zwischen Migranten und Einheimischen zum Teil durch sozio-demographische Merkmale, das Arbeitsmarktverhalten und die Verfügbarkeit (in)formeller Kinderbetreuung erklären lassen, bleiben große Unterschiede, vor allem für türkischstämmige Migranten, bestehen.

**Schlagwörter:** Kinderbetreuung, formelle Kinderbetreuung, informelle Kinderbetreuung, Migranten und Migrantinnen, Müttererwerbstätigkeit

JFR – Journal of Family Research, 2021, Early View, pp. 1–42.

doi: 10.20377/jfr-463

Submitted: June 30, 2020

Accepted: January 15, 2021

Published online: January 29, 2021

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