Social Networks and Early Childhood Investment: Evidence from Refugees in Denmark

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Abstract

Governments invest heavily in early childhood programs, yet take-up among disadvantaged populations remains low. We study how local social networks shape engagement with these services, focusing on formal childcare. Using quasi-random refugee placement in Denmark, we estimate the causal effect of co-national network size and composition on formal childcare enrollment. Larger enclaves significantly reduce enrollment among children aged 0-2, when parental discretion is greatest, but these effects disappear by ages 3-5. In contrast, network employment rates have no impact. Evidence suggests that networks operate through information substitution and reinforcement of origin-country norms favoring home-based care.

Keywords: Childcare, Co-national networks, Refugees, Spatial Dispersal policy

JEL codes: J13, J15, R23

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1 Introduction

A central challenge for public policy is ensuring that human capital investments reach the populations they are designed to serve (Currie, 2004). Formal and subsidized childcare exemplifies this challenge. A large literature demonstrates that formal childcare generates lasting gains in child development, school readiness, human capital formation, and maternal employment (Currie and Thomas, 1999; Heckman et al., 2010; Attanasio et al., 2022; Evans et al., 2024; Felfe et al., 2015; Karademir et al., Forthcoming; Sander, 2024). These benefits are disproportionately larger among children from disadvantaged backgrounds (Bitler et al., 2014; Cascio and Schanzenbach, 2013; Cornelissen et al., 2018; Havnes and Mogstad, 2011, 2015).

Recognizing these returns, many governments have expanded access through universal provision and heavy subsidies, from Head Start and the Perry Preschool Project in the United States to universal childcare systems across much of Europe. Nevertheless, large enrollment gaps persist; those who would benefit the most from early childcare are precisely those who are least likely to enroll (Cascio, 2021; Flood et al., 2022; OECD, 2019). In the United States, for example, only about 15 percent of eligible children received federal childcare subsidies in 2021 (Chien, 2024). In Denmark, where childcare is guaranteed to all families at minimal cost, children of non-Western migrants are nearly 25 percentage points less likely to be enrolled at age one than native children (Figure 1). Despite some convergence, a substantial gap remains through the early preschool years. The persistence of large enrollment gaps in such a setting suggests that demand-side forces, rather than institutional constraints, play a central role. What explains this gap?

This paper investigates a fundamental but underexplored determinant of service take-up: the local social network. Social ties shape economic decisions in many domains, from job search to technology adoption and health behavior (Dustmann et al., 2015; Bailey et al., 2018; Blumenstock et al., 2023; D'Adda et al., 2025). Whether they also shape engagement with public institutions, and through what channels, remains poorly understood. We focus on co-national networks, which are particularly salient for immigrant families navigating unfamiliar systems. Such networks could lower barriers to participation by transmitting information and normalizing institutional engagement. Alternatively, they could raise barriers by reinforcing origin-country norms and providing informal substitutes for formal care. Which effect dominates is a priori unclear and has direct implications for integration policy and the design of public service delivery.

We study this question using Denmark's Spatial Dispersal Policy (1986-1998) as a natural experiment.[1] The policy assigned refugee families to neighborhoods based on housing availability

[1] Denmark has actively promoted formal childcare as a tool for migrant integration that facilitates language acquisition, social interaction, and parental employment. Since 2018, Denmark has mandated that children in neighborhoods where at least 50 percent of residents are immigrants or their descendants must attend at least 25 hours of childcare per week starting at age one (Versi, 2020).

rather than preferences or characteristics, placing them into co-national networks that varied in size and composition within municipalities. This quasi-random assignment allows us to estimate the causal effect of local network characteristics on childcare enrollment.[2] We combine this variation with rich administrative data covering the universe of refugee families and their children, tracking childcare enrollment from birth through age five.

Our main finding is that larger co-national networks reduce formal childcare enrollment between ages 0 and 5, even after controlling for a rich set of individual, family, neighborhood, and municipal characteristics. A one-standard-deviation increase in the local co-national share lowers enrollment among children aged 0-2 by 1.2 percentage points, a 2.3 percent decline relative to the mean. This effect accounts for approximately 6 percent of the non-Western migrant-native gap at ages 0-2. Moving from the mean to the largest observed enclave implies a 33 percent reduction in early enrollment. To put this in perspective, the mean-to-max effect is similar in percentage-point terms to that of intensive application-assistance interventions that help families navigate enrollment processes (Hermes et al., 2025), and equivalent to an increase of roughly $700-900 in annual childcare costs based on demand elasticities estimated in Germany (Gathmann and Sass, 2018).

The network effects are concentrated at ages 0-2, when enrollment is most discretionary. For children aged 3-5, effects are smaller and statistically insignificant. Overall, a one-standard-deviation increase in network size reduces total time in formal care by nearly three weeks. Notably, the employment rate of co-nationals —a proxy for network quality —has no impact at any age, suggesting that the relevant channel operates through social dynamics rather than labor market complementarities. Our results remain robust in magnitude and significance across alternative specifications and sample restrictions. We find no evidence that co-national networks affect fertility timing in ways that would bias our estimates, and placebo tests confirm the effects are not driven by spurious correlations.

We provide evidence for two main mechanisms. First, networks appear to substitute for formal information channels. The negative effect of enclave size is attenuated among families with greater prior exposure to Danish institutions: those with more years since migration, or with an older sibling born in Denmark who already provided parents with experience navigating the system. These patterns are consistent with information accumulating through institutional exposure, reducing reliance on network-based information over time.

Second, networks reinforce origin-country cultural norms around gender roles and early caregiving. The effect of enclave size is more pronounced for girls than boys, which is consistent with prior research showing that families apply more protective behavior toward daughters (Aslund et

[2]We use enclave, co-ethnic network, and co-national network interchangeably. We measure network size as the share of adults from the same country of origin in the neighborhood, and enclave economic integration as the co-national employment rate.

al., 2011; Gathmann and Sass, 2018). Moreover, network effects are stronger in more gender-progressive Danish municipalities, where the contrast between host- and origin-country gender norms is the greatest. The majority of refugees in our sample originate from the Middle East and Africa, regions where early childcare is typically less institutionalized and caregiving norms are more traditional. Therefore, the observed effects are consistent with the models of "oppositional identity," which predict that cultural preservation intensifies when the gap between host and origin norms is largest (Bisin et al., 2011, 2016). Importantly, we show that the relevant mechanism is not simply information scarcity, but rather how information is framed through network norms. If information scarcity alone were driving our results, negative effects should be stronger in areas with a low childcare uptake among the general population, where information is presumably less available, which we do not observe.

We rule out several alternative explanations. Supply-side constraints are unlikely to drive our results, as refugees constitute a small share of the local population. Crucially, our empirical approach relies on comparing refugee families placed in different neighborhoods within the same municipality, so they face the same local childcare system, which in Denmark is operated at the municipality level. Similarly, we find no evidence that the availability of informal care through co-national networks explains our results. These findings reinforce that our results reflect demand-side mechanisms operating through information and norms.

This paper contributes to two main literatures. The first examines take-up of public programs among eligible populations, highlighting financial constraints, information frictions, hassle costs, and behavioral biases as key barriers (Aizer, 2007; Bhargava and Manoli, 2015; Deshpande and Li, 2019; Finkelstein and Notowidigdo, 2019). Within this literature, a smaller body of work focuses on childcare take-up, particularly among disadvantaged and immigrant families, but is largely descriptive and survey-based, documenting enrollment gaps without identifying causal mechanisms (Boll and Lagemann, 2018; Schober and Stahl, 2014; Seibel and Hedegaard, 2017; Jessen et al., 2020). The exception is work examining how childcare costs impact enrollment (Gathmann and Sass, 2018; Leibowitz et al., 1992; Lokshin, 2004). Yet, in countries like Denmark, where financial and administrative barriers are largely absent, substantial gaps nonetheless remain, suggesting that social context may also play a role. We show that it does. The composition of one's local community —specifically, co-national concentration —shapes engagement with public institutions. Leveraging a setting where cost, access, and quality are largely equalized, we provide the first causal estimates of how local co-national networks affect early childcare decisions. If social networks shape take-up even here, they likely matter even more where such conditions are not met.

Second, we contribute to the literature on neighborhood effects and immigrant integration. Seminal work has established that neighborhoods shape educational attainment, earnings, health, and political participation (Katz et al., 2001; Chetty et al., 2016; Chyn and Haggag, 2023; Damm

and Dustmann, 2014; Hasager and Jørgensen, 2024; Ludwig et al., 2013). A parallel literature examines how ethnic enclaves affect integration trajectories, focusing primarily on adult labor market outcomes (Edin et al., 2003; Damm, 2009; Battisti et al., 2022). Recent work has extended this scope to examine healthcare utilization and educational attainment (Aslund et al., 2011; Kulshreshtha, 2024). We advance this literature in three ways. First, we focus on early childcare —which represents one of the first points of contact between immigrant families and host-country institutions —among refugee children, a particularly policy-relevant population.[3] Second, while most papers in this literature establish that networks matter, few identify the mechanisms through which they operate. We provide evidence for two channels, information transmission and norm reinforcement. Third, while prior work has shown that ethnic enclaves ease initial labor market entry through job referrals and information sharing (Dustmann et al., 2015), we show that these same networks can discourage engagement with host-country institutions, revealing that enclaves that facilitate economic integration may simultaneously hinder social and institutional integration.

Our findings directly address ongoing policy debates. Across Europe, governments increasingly position early childcare as an integration tool, going so far, in Denmark's case, as to mandate attendance from the age of one in some migrant-intensive neighborhoods. While such policies aim to promote inclusion, they may also risk generating backlash if they overlook the social and cultural factors that underlie non-participation. Our results suggest that low childcare enrollment is not solely a function of access or cost, but is also linked to cultural and informational dynamics within local networks. Policies that ignore these dynamics may fail to achieve their goals.

The remainder of the paper is organized as follows. Section 2 describes the Danish institutional setting. Section 3 introduces the data, and Section 4 outlines the conceptual framework. Section 5 presents the empirical strategy and validity checks. The main results and mechanisms are reported in Section 6, while Section 7 discusses robustness. Finally, Section 8 concludes.

2 Institutional Background

2.1 Childcare in Denmark

Denmark provides a clean setting to isolate demand-side barriers to early childcare take-up. Since 1965, the country has operated a universal, publicly subsidized childcare system (Sander, 2024). Initially targeted toward low-income families, the system gradually expanded to cover all children and guarantee a place for every child. Children can enroll in daycare as early as six months of age.

Families can choose between center-based and family-based daycare, depending on the child's

[3]Despite extensive research on immigrants' labor market outcomes, much less is known about their children, who continue to experience persistent gaps.

age. Children aged 0-2 typically attend nurseries or family daycare, while those aged 3-5 are enrolled in kindergartens or age-integrated institutions that combine both age groups. Nurseries are center-based facilities serving large groups of 60 to 100 children with multiple caregivers, while family daycare involves small groups of two to five children cared for by a childminder in a home setting. In our analysis, we examine childcare take-up separately for ages 0-2 ("daycare") and ages 3-5 ("kindergarten"), corresponding to the two main stages of early childcare in Denmark.

Daycare enrollment operates through a waiting list system that is managed by municipalities. Parents are encouraged to register their child before the child turns four months old to maximize their seniority on the waiting list (Gørtz et al., 2024). When applying, parents specify two preferred daycare facilities and their desired start date. A child's position on the waiting list is typically determined by their birthday or application date, with average waiting times ranging from just over two weeks to a maximum of around eight months from the preferred start date (Gørtz et al., 2024). While preferences can be indicated, parents are generally assigned the first available slot. Once a child is enrolled, they cannot transfer to another daycare without re-entering the waiting list. All children, regardless of their parents' employment status or migrant background, are eligible for municipal childcare (Gupta and Simonsen, 2016).

Denmark has one of the highest quality childcare systems and staff-to-child ratios among OECD countries, with an average ratio of 3.1 children per adult (Gupta et al., 2008). All providers, regardless of type, are regulated by the state to ensure consistency in educational content, safety, and hygiene (Gupta and Simonsen, 2010; Esping-Andersen et al., 2012; Bauchmüller et al., 2014; Tolaj, 2022). Importantly, childcare in Denmark is also affordable. While historical data on average annual costs per slot are limited, estimates place them up to $5,000 per year. Parents pay a maximum of 25-33% of this cost. In recent years, families with annual incomes less than $20,000 are exempt from paying fees, while those earning over $60,000 pay the maximum contribution.

While childcare in Denmark is widely accessible and heavily subsidized, persistent and substantial gaps in childcare take-up remain between migrant and native families. Figure 1 plots age-specific childcare enrollment rates by origin, distinguishing between Danish children, Western migrants, and non-Western migrants. Several patterns emerge. First, childcare enrollment during the child's first year is low across all groups, reflecting Denmark's generous parental leave policy since the 1990s (OECD, 2022). Even at this early stage, however, Danish children are about 10 percentage points more likely to be enrolled than children of non-Western migrants. Second, for all groups, enrollment in formal childcare increases steadily with age, particularly between ages 0 and 3, before leveling off. Third, Danish children consistently exhibit the highest enrollment rates, exceeding 90 percent by age 4. Children of Western migrants follow a similar pattern, though at lower levels. In contrast, children of non-Western migrants start with markedly lower enrollment, just under 40 percent at age 1 —an enrollment gap of almost 25 percentage points relative

to natives. Although their participation increases substantially over time, they only catch up to the levels of Western migrants by ages 4 and 5, and still lag behind Danish children by approximately 10 percentage points.

2.2 Danish Spatial Dispersal Policy, 1986-1998

In the 1980s, the Danish Refugee Council (DRC) administered a centralized program to admit refugees and find them housing, language training, and other integration services. As refugee inflows increased, the DRC faced growing challenges in placing refugees in large cities, where housing was scarce. In response, the Danish government introduced a Spatial Dispersal Policy in 1986, designed to facilitate integration and to distribute refugees more evenly throughout the country. The policy remained in place until 1998 and serves as the source of exogenous variation that underpins our empirical strategy. In this section, we outline the key features of the policy.

Upon receiving asylum, refugees completed a questionnaire that collected basic information on their nationality and family size. These were the only details available to the DRC at the time of placement and were used to assign refugees to municipalities and match them with suitable housing. Importantly, the DRC's decisions were not influenced by refugees' educational attainment, Danish language proficiency, or labor-market experience, as no such information was collected. There were no in-person interviews between placement officers and refugees, meaning that allocation decisions were based solely on the information provided in the questionnaire.

In the initial phase, refugees were distributed across municipalities in proportion to each municipality's population size and the availability of temporary housing. DRC officers then used the questionnaire information to locate appropriate housing within the assigned municipality. The process, however, was constrained by chronic housing shortages, as the DRC could rely only on rental properties and was not permitted to purchase or lease them directly (Hasager and Jørgensen, 2024). As a result, the demand for housing consistently exceeded the available supply, resulting in queues of refugees with similar housing needs, as indicated by their questionnaires. Whenever a permanent housing option became available, it was offered to the next refugee in line whose profile matched the available dwelling. This system effectively prevented selective placement based on preferences or socioeconomic characteristics. Neither municipalities nor neighborhoods within municipalities had any discretion over the number or identity of refugees allocated to them (Hasager and Jørgensen, 2024). As a result of housing shortages, settlement offers were accepted at high rates, and over 90 percent of refugees were eventually placed in permanent housing under this policy (Damm, 2009). The only exception was refugees from the former Yugoslavia, who were resettled under a separate arrangement and are thus not part of our sample.

The DRC's resettlement process distributed refugees across neighborhoods within municipal-

ities based on housing availability and the limited information captured in the placement questionnaire. This generated quasi-random variation in refugees' initial housing locations and, consequently, in the size and composition of co-national networks they encountered. Moreover, because refugee inflows varied in timing by origin country, the policy itself led to the formation of co-national clusters in certain areas. In practice, these clusters are a byproduct of the assignment process.

We use parishes (sogne) as proxies for neighborhoods in Denmark, following Hasager and Jørgensen (2024). Parishes are historically rooted geographic units whose boundaries, originating in the Middle Ages, have remained remarkably stable over time. Modern Danish parishes typically have around 2,000-5,000 inhabitants and constitute cohesive, socially meaningful local communities within municipalities. School districts and municipal boundaries are often aligned along parish lines. These factors make parishes a suitable unit for studying neighborhood-level dynamics in the Danish context.

3 Data

This paper draws on rich longitudinal administrative data from Statistics Denmark, covering the period 1986-2013. All registers are linked using a unique personal identifier, allowing us to track individuals and households over time and across datasets. These include the Integrated Database for Labor Market Research *(IDA)*, the Education Register *(UDDA)*, and the Population Register *(BEF)*. Crucially, the latter provides annual information on age, gender, marital status, and address for the entire Danish population, including refugees. Migration histories, including country of origin and arrival dates for each migration spell, are drawn from the Migration Register *(VNDS)*.

Childcare Outcomes Our main outcomes are derived from the Danish Childcare Register *(DAGI)*, which records annual contact between children and formal childcare institutions during week 10 of each calendar year, beginning in 1995.[4] The register covers all childcare facilities and identifies the type of care provided. We measure the total number of years a child was enrolled in formal childcare between ages 0 and 5. We also construct two binary indicators indicating whether a child was ever enrolled at ages 0-2 and 3-5.

[4]The DAGI register provides individual-level childcare enrollment data only from 1995 onward. To extend coverage to earlier years, we utilize aggregate statistics from Statistics Denmark on childcare enrollment by age and municipality, which have been available since 1986. These data allow us to compute consistent measures of municipal childcare enrollment across time. However, a limitation is that they cannot be disaggregated by children's nationality or observed at the parish level. Accordingly, while our main analyses rely on parish-level variation, we use the municipal aggregates —measured in the year of allocation —for descriptive statistics, balance tests, and heterogeneity analyses that require childcare information prior to 1995.

We distinguish between the 0-2 and 3-5 age groups to reflect both institutional and behavioral differences in childcare use. Children under the age of 3 are typically offered a different form of care than older children (e.g., home-based care and daycare vs. kindergarten; see section 2.1). Additionally, these age categories reflect differences in parental attitudes and evolving norms toward formal childcare. Parents are generally more receptive to childcare after age three, when it is viewed as part of early education rather than merely custodial care (Caria et al., 2025; Philipp et al., 2025; Ruckdeschel, 2015; Sander, 2024).

Our analysis focuses on children aged 0-5 whose parents were assigned to a neighborhood (parish) under Denmark's Spatial Dispersal Policy (SDP). The sample is constructed in two steps. First, we identify adult refugees subject to the policy, and second, we link their children.

Refugee Adults We identify refugee adults subject to the SDP using the Population and Migration Registers. Because residency permit information was not recorded before 1997, we follow prior literature in imputing refugee status based on arrival date and country of origin (Damm, 2005; Damm and Dustmann, 2014; Foged and Peri, 2016; Hasager and Jørgensen, 2024).[5] Specifically, we classify as refugees individuals who migrated from Afghanistan, Ethiopia, Iran, Iraq, Lebanon, Palestine (coded as stateless), Sri Lanka, and Vietnam between 1986 and 1998, and from Somalia between 1989 and 1998. Yugoslav refugees are excluded because they were resettled under a separate policy due to the size of the inflow.

We restrict the sample to adults aged 18 and above upon arrival, and exclude individuals who (1) do not appear in the registry one year after arrival (suggesting out-migration), and (2) were married to a Danish citizen or a non-Danish individual who arrived in Denmark before them, as these individuals were not dispersed randomly. The parish of assignment is identified from the Population Register. We ensure that the arrival date, country of origin, and the basic characteristics used in the allocation process are observed for all refugees in the sample.

Children Next, we identify children aged 0-5 linked to these refugee adults. We assign each child a "focal parent," the parent whose neighborhood assignment determines the child's treatment. This is defined as the father, unless he is missing or unknown, in which case the mother is used. We prioritize fathers for two reasons. First, males often arrive first among refugee families, with spouses following through family reunification. Second, in more conservative societies from which most refugees in our sample originate, men tend to play a stronger role in household decision-making.

We exclude children whose parents arrived in Denmark as minors, who themselves entered Denmark after age 5, or who were born more than ten years after the parents' arrival. We further

[5] We thank Linea Hasager for sharing the code of the imputation procedure.

restrict the sample to children observed at least once between ages 0-2 and again between ages 3-5, ensuring that we observe both the daycare and kindergarten windows. This restriction is necessary because individual-level childcare data are only available from 1995 onward, and children who arrived in Denmark after infancy would have mechanical zeros in early enrollment that reflect foreign residence rather than parental choices. In practice, these restrictions limit the sample to children born between 1992 and 2009. We relax them in the robustness checks and confirm that our results are not sensitive to sample choice.

The final sample includes 16,094 children from 8,293 households assigned to 805 parishes (neighborhoods) and 216 municipalities. Table 1 presents the characteristics of the focal SDP parent at the time of arrival. The majority are male (75%), reflecting that in most households the father was assigned first or arrived together with his family; in the remaining cases, we rely on the mother as the focal parent. The average age at arrival is 27.5 years, and the average family size is 2; 60% are married at arrival. The three largest origin groups are Iraqi, Somali, and Lebanese nationals.[6] Educational attainment at arrival is observed for 74% of the sample; among these, 34% have only basic education or less, 19% hold vocational degrees, and 21% have higher education.

Table 2 reports descriptive statistics for children in the analysis sample. About 51% are male, and the vast majority (91%) were born in Denmark. In 57% of cases, one parent arrived as a refugee while the other entered through family reunification. Additionally, 87% of children have parents of the same nationality. In our sample, 53% of children attend formal childcare at least once between ages 0-2, and 82% between ages 3-5. On average, children spend 3 years in childcare between the ages of 0 and 5.

Neighborhood Characteristics As previously mentioned, we define neighborhoods at the parish-level and focus on two key characteristics measured between 1986 and 1998. First, we calculate the co-national network share as the proportion of the neighborhood's adult population that originates from the same country as the refugee. Second, we construct the co-national employment rate, defined as the share of co-nationals who are employed. In our analysis, we also control for several socioeconomic characteristics at both the neighborhood and municipality levels. These include the municipal employment rate, population share, and share of residents classified as poor, as well as the neighborhood-level employment rate and median income.

Table A1 presents summary statistics describing co-national networks in the neighborhoods to which the focal SDP parents were initially assigned, measured at the time of assignment. On average, adult co-nationals constitute a small share of the local neighborhood population (0.4%), although this varies substantially across neighborhoods, reaching up to 13.5% in some cases. In ab-

[6]Figure A1 in the Appendix shows the annual composition of refugees by country of origin, illustrating how staggered inflows contribute to variation in enclave size. Cohorts from different origins arrived at different times. This timing partly drives variation in the size of co-national networks.

solute terms, the number of adult co-nationals per neighborhood ranges from 0 to over 1,000, also reflecting large differences in enclave size. The average co-national employment rate is 14.0%, with a wide distribution (SD = 22.2 percentage points). The average co-national female employment rate is roughly half that level at 6.7%.

4 Conceptual Framework

This section outlines the conceptual framework guiding our analysis. We begin by illustrating the broader importance of location by examining variation in childcare enrollment across municipalities. The municipality is the administrative level responsible for childcare provision and integration policy, making it the first natural unit to assess whether geographic placement affects early childcare decisions. We then move to the neighborhood level. Early childcare decisions are discretionary (especially for children under age three) and culturally salient, making them responsive to social influence. Given their salience for immigrant families navigating new institutions, co-national networks are a natural focus for understanding how local context shapes childcare decisions and through which channels networks operate.

We begin by documenting substantial geographic variation in formal childcare enrollment among refugee families. Figure A2 in the Appendix maps the average share of children aged 0-2 and 3-5 enrolled in formal childcare across *municipalities* for families assigned under the 1986-1998 Spatial Dispersal Policy. These maps reveal large differences in formal childcare enrollment across municipalities, especially for younger children (ages 0-2).[7]

To benchmark the potential importance of location, we estimate municipality fixed effects while controlling for baseline characteristics available to placement officers at the time of assignment. The detailed specification and results are available in Appendix B. The dispersion in municipality effects is sizable, accounting for nearly half of the variation in childcare enrollment across both age groups. This finding suggests that the location of the initial placement of refugee families has meaningful implications for early childcare decisions.

These geographic differences could reflect both supply-side and demand-side factors. However, structural barriers are minimal, as childcare in Denmark is heavily subsidized and does not vary substantially in cost or access constraints.[8] Thus, much of the observed variation likely arises

[7]We show municipality-level variation rather than parish-level (neighborhood) variation because parish maps would be too granular and subject to extensive masking to comply with confidentiality restrictions. Moreover, our analysis does not include parish fixed effects; we instead include municipality fixed effects to control for broader contextual differences, as explained in Section 5.

[8]Unfortunately, we do not have data on waiting times by childcare institution or other supply-side indicators, such as staff availability or facility capacity, which would allow us to assess potential supply constraints more directly. However, many of these supply-side factors are managed by the municipal central authorities, such that within the municipality, they are less likely to vary. In our main specification, we use municipal fixed effects and exploit within-

from demand-side factors —how families perceive and value formal care and how local social environments shape those decisions.

To examine these demand-side channels more precisely, we move from municipalities to smaller geographic units, the parishes *(sogne)* where families were initially assigned. Parishes capture the immediate neighborhoods where refugee families live and interact, offering a more granular lens on the local social environments that affect daily behavior. Within the same municipality, families share access to the same childcare system but differ in the composition of their nearby co-national networks. This within-municipality variation enables us to isolate the impact of local co-national networks on families' childcare decisions.

Co-national networks can affect formal childcare uptake through several channels. First, formal childcare is often complementary to parental employment or participation in integration programs, especially for mothers, so network employment rates may mechanically shape uptake. Second, newly arrived families often lack information about the benefits of early care or how to access it; co-national peers can either alleviate or reinforce these gaps depending on their composition and experience. Third, strong cultural norms favoring maternal or community-based caregiving may reduce demand, especially when reinforced by large local networks.

We capture these dimensions using two neighborhood measures: the share of co-nationals in the local population (enclave size) and the co-national employment rate (enclave quality). The former proxies for exposure to prevailing norms, information access, and informal care options, while the latter reflects the network's level of economic integration and its potential to shape expectations around work and formal care. In the next section, we describe the empirical strategy through which we estimate the effects of neighborhood co-national networks. We later examine the underlying mechanisms through which these networks operate in Section 6.

5 Empirical Strategy

The key empirical challenge in estimating the impact of co-national networks is the non-random sorting of families into neighborhoods. Families may self-select into areas with particular characteristics, such as stronger co-national networks or higher childcare usage, based on unobserved preferences or constraints, making it difficult to identify causal effects.

To address this concern, we leverage Denmark's Spatial Dispersal Policy (described in Section 2) as a quasi-natural experiment. Refugee families were assigned to neighborhoods by caseworkers based on housing capacity rather than individual preferences, making the initial placement effectively random, conditional on the information in the placement questionnaire. The policy also

municipality across-neighborhood variation. Additionally, in the robustness checks, we show our main results hold when controlling for municipality-by-year fixed effects, which account for any time differences within municipalities.

shaped the settlement patterns of earlier refugee cohorts, which in turn determined the size and composition of local co-national networks that later arrivals encountered. This provides plausibly exogenous variation in enclave size and quality.

We estimate the causal effect of local co-national network characteristics on childcare enrollment using the following model:

$$\begin{aligned} Y_{iotmn} = \alpha + \beta_1 CNtwk_{on,t-1} + \beta_2 CEmp_{on,t-1} + \delta Child_i \\ + \Delta X_{it} + \eta N_{n,t-1} + \gamma M_{m,t-1} + \alpha_m + \alpha_t + \alpha_o + \epsilon_{iotmn} \end{aligned} \tag{1}$$

where Y_{iotmn} denotes the childcare outcome for child i, born to focal (SDP) parent from country of origin o, assigned in year t to neighborhood (parish) n in municipality m.

Our main variables of interest are the co-national network share ($CNtwk_{on,t-1}$) and the co-national employment rate ($CEmp_{on,t-1}$), each measured in the year prior to assignment and standardized to have a mean of zero and unit variance. The coefficients β_1 and β_2 therefore capture the effect of a one-standard-deviation increase in each network measure. The vector ($Child_i$) controls for the child's sex, birth order, and an indicator for being born in Denmark. We also control for information available to caseworkers at the time of assignment (X_{it}), namely the age, sex, marital status, and family size of the focal SDP refugee parent.

We include municipality-of-assignment fixed effects (α_m) to absorb time-invariant characteristics at the broader geographic level, such as childcare capacity or economic conditions.[9] Year-of-assignment fixed effects (α_t) control for national shocks common to all refugees arriving in a given year, while country-of-origin fixed effects (α_o) capture cultural differences in childcare preferences across source countries.

To account for time-varying local conditions, we also control for both municipality and neighborhood-level characteristics measured in the year prior to assignment. These variables capture differences in local labor market opportunities and area quality that may independently affect childcare decisions. Specifically, $M_{m,t-1}$ includes the overall employment rate, the municipality's population share, and the share of residents classified as poor, while $N_{n,t-1}$ includes the employment rate and household median income within the neighborhood of assignment.[10] Standard errors are clustered at the family level to account for families with more than one child in the sample.[11]

[9] As a robustness check, we replace the municipality-of-assignment fixed effects with municipality-by-year of assignment fixed effects and continue to control for neighborhood characteristics. The results remain unchanged (see Section 7).

[10] In the results tables, we refer to the collection $Child_i$, X_{it}, $M_{m,t-1}$, and $N_{n,t-1}$ as baseline controls and to α_m, α_t, and α_o as baseline fixed-effects. When looking at outcomes related to parents, we instead use parent controls, which include X_{it}, $M_{m,t-1}$, and $N_{n,t-1}$. In some regressions, we use Y_{iotmn} as an outcome variable referring to the focal parent of child i.

[11] The results are robust to clustering the standard errors at the neighborhood-level.

Ultimately, our estimates rely on within-municipality variation in co-national networks. We include municipality fixed effects and a rich set of municipal and neighborhood controls that proxy for neighborhood quality (e.g., local employment and median income). Conditional on these controls, the remaining variation in enclave size arises from the interaction of staggered refugee inflows with idiosyncratic housing availability across neighborhoods, both of which are plausibly orthogonal to other neighborhood characteristics affecting childcare decisions. Consistent with this, Appendix Table A2 shows that neighborhood co-national network size is only weakly correlated with municipal childcare enrollment (ρ = 0.032) and measures of enclave quality such as co-national employment rates (ρ = 0.116-0.124), indicating that our treatment variation is not mechanically tied to baseline differences in childcare take-up or labor market conditions.[12] We therefore interpret the coefficients as capturing the effect of co-national network size and quality on childcare decisions, consistent with prior work on ethnic networks and integration (Aslund et al., 2011; Damm, 2009; Battisti et al., 2022; Foged et al., 2024).

5.1 Validity of the Empirical Design

Our identifying assumption is that, conditional on the information available to DRC placement officers, the characteristics of refugees are not systematically correlated with the characteristics of the neighborhood to which they were assigned. That is, assignment is as good as random, conditional on observed covariates. This also assumes that refugees were not able to influence their placement, nor were caseworkers systematically matching families to neighborhoods based on favorable labor market conditions or specific ethnic compositions.

To evaluate the plausibility of this assumption, we perform a series of balance tests to detect whether refugee characteristics predict the type of neighborhood to which they were assigned. Specifically, we test for sorting of refugee parents by regressing a range of neighborhood-level characteristics on the traits of the focal SDP parent that were observable to caseworkers at the time of allocation, including age, gender, marital status, family size, and country of origin. We also examine balance on educational attainment at arrival, which was not available to caseworkers but is observed in our administrative data. Since this information was unobservable at the time of assignment, it should not systematically predict the characteristics of the assigned neighborhood. Formally, we estimate the following regression:

$$Y_{nm,t-1} = \alpha + \beta_1 BasicEduc_{pt} + \beta_2 VocationalEduc_{pt} + \beta_3 HigherEduc_{pt} + \delta X_{pt} + \alpha_m + \alpha_t + \alpha_o + \epsilon_{pnmt} \quad (2)$$

[12] Table A2 also shows that enclave size is negatively correlated with neighborhood employment rates, but we control for this directly in all specifications.

where $Y_{nm,t-1}$ denotes pre-determined neighborhood n characteristics measured in the year prior to the refugee parent's p assignment. $BasicEduc_{pt}$, $VocationalEduc_{pt}$, and $HigherEduc_{pt}$ are mutually exclusive indicators for the educational attainment of the focal SDP parent. The vector X_{pt} includes the refugee characteristics known to caseworkers at the time of assignment: age, sex, marital status, and family size. We include fixed effects for municipality of assignment (α_m), year of arrival (α_t), and country of origin (α_o). The key coefficients of interest are those on the education dummies.

Table 3 presents the results from the balancing tests. Refugees' education levels, which could proxy for unobserved skills, preferences, or socioeconomic background, do not significantly predict assignment to neighborhoods with different co-national compositions, incomes, employment rates, or childcare take-up. None of the estimated coefficients on the education indicators are statistically significant at conventional levels. An F-test fails to reject the joint insignificance of the education dummies across all outcomes ($p > 0.1$). Some observable characteristics recorded in the placement questionnaire (age, gender, household size) are modestly correlated with neighborhood traits. These characteristics are observed by placement officers, who primarily match families to vacant public housing units across neighborhoods based on household size. In our analysis, we condition our estimates on these observable characteristics. Overall, the results support the plausibility of quasi-random assignment across parishes, conditional on the information used in the allocation process.

An additional threat to the plausibility of our strategy is sample selection arising from fertility responses to the initial placement of refugee parents. Because the majority of children in our sample are born in Denmark, it could be problematic if co-national networks affect whether and when refugee families choose to have children, thus affecting which parents are observed with children in the sample.[13] For example, refugees placed in more supportive or economically integrated areas might be more likely to expand their families, increasing both the probability that their children enter our sample and their likelihood of using formal childcare. This could result in endogenous selection into our sample and bias our estimates.

To assess this, Table A3 in the Appendix presents estimates of co-national network effects on fertility within five and ten years of migration, using Equation 1. We estimate this relationship for three groups: (1) all refugee adults subject to the Spatial Dispersal Policy between 1986 and 1998, (2) refugee females aged 18-44 at arrival, and (3) the focal SDP parents in our main analysis sample. The outcomes in Columns (1), (4), and (7) measure the number of children born in Denmark within five years of arrival, while Columns (2), (5), and (8) measure the number of children born within ten years of arrival. Columns (3), (6), and (9) use a continuous outcome denoting the

[13] We cannot focus only on children born abroad, as the number of refugee children aged 0-5 who were born abroad and assigned to municipalities between 1986 and 1998 is very small.

number of years between immigration and the birth of the first child in Denmark.[14] Nearly all estimated effects are small in magnitude and statistically insignificant at conventional levels. We find no evidence that fertility behavior is systematically shaped by initial neighborhood assignment, indicating that there are no selective fertility responses biasing our estimates.

Another potential concern is that families may relocate after initial assignment, diluting their exposure to the local co-national network in which they were first placed.[15] However, refugees assigned to larger co-national networks are less likely to move from their initial neighborhood (Table A4 in the Appendix). A one standard deviation increase in the local co-national share raises the probability of staying in the initial neighborhood of assignment for up to 10 years by 2.9 percentage points ($p < 0.05$). The magnitude is similar when comparing the first five years after arrival with years 6-10 (Columns 1, 2, and 3). Moreover, a one standard deviation increase in the local co-national employment rate increases the likelihood of staying in the initial neighborhood during the first 1-10 years after migration by about 1 percentage point, suggesting that better-integrated co-national networks strengthen place attachment and reduce incentives to relocate (Column 1, $p < 0.1$). Importantly, there is no systematic tendency to move to areas with larger/smaller co-national networks or higher/lower childcare coverage. The coefficients are close to zero and precisely estimated (Columns 4 and 5). This implies that when moves do occur, they are not driven by unobserved childcare preferences or by selective migration toward areas with larger networks or greater childcare availability. These results are consistent with Foged et al. (2024) and Dustmann et al. (2023), who likewise document that migrants' subsequent mobility declines 1-15 years after migration when the initial municipality has a higher share of co-nationals.

Overall, residential mobility is unlikely to bias our estimates upward. If anything, such mobility would attenuate the estimated effects by weakening the link between initial assignment and subsequent exposure to the local co-national environment. Refugees assigned to larger co-national networks are more likely to remain in their initial neighborhoods; however, when they do move, the moves are not systematically directed toward areas with higher childcare availability or larger enclaves.

[14] Note that the number of parents in Columns 3, 6, and 9 is different than the main analysis because the latter includes parents who entered Denmark with a child.

[15] Between 1986 and 1998, refugees were not restricted from moving, but were provided an 18-month introduction program including Danish language courses and job training available only in their assigned municipality (Damm, 2005). Housing constraints further limited relocation, and out-migration from Denmark is minimal (<1% within 10 years).

6 Results and Discussion

6.1 Co-national Networks and Childcare Usage

Table 4 presents our main results on the effects of co-national networks on childcare take-up among children aged 0-2 and 3-5, as well as on the total number of years children aged 0-5 spend in formal care. Columns (1), (3), and (5) include only the local co-national share in the neighborhood —a proxy for enclave size —while Columns (2), (4), and (6) further add the co-national employment rate to capture the network's level of economic integration.

We find that larger co-national networks reduce formal childcare enrollment, driven entirely by lower daycare enrollment at ages 0-2. A one-standard-deviation increase in the share of co-nationals in the neighborhood of assignment decreases childcare take-up at ages 0-2 by 1.2 percentage points (Columns 1 and 2). Relative to a mean enrollment rate of 53% among refugee children in this age group, this represents a 2.3% decline in enrollment probability ($p < 0.05$). Including the co-national employment rate in Column (2) has little impact on the magnitude or significance of this effect, and the employment rate itself does not predict enrollment. This underscores that the relevant margin is network size rather than the network's labor market integration.

This effect accounts for 6% of the 20 percentage point enrollment gap between non-Western migrants and natives at ages 0-2. Put differently, the estimated effect implies that moving from the mean to the largest observed enclave reduces early enrollment by 17.4 percentage points, a 32.8% decline relative to the mean.

For children aged 3-5, the network effect point estimate is negative but smaller (-0.4 percentage points) and not statistically significant at conventional levels (Columns 3-4). This implies a 0.5% decline relative to the sample mean of 82%. Similar to the younger age group, co-national employment rates do not appear to matter for older children either.

At the extensive margin, children assigned to neighborhoods with one standard deviation larger co-national enclaves spend roughly 0.05 years fewer in formal childcare between ages 0 and 5 ($p < 0.05$, Columns 5-6). Given that children in our sample spend an average of 3 years in childcare, this effect translates to approximately three full weeks of foregone enrollment. Moving from the mean to the maximum enclave size implies a reduction of nearly 9 months.

Overall, our results indicate strong and significant effects on childcare use among children aged 0-2, but no meaningful effects among children aged 3-5. The attenuated effect at ages 3-5 is consistent with the idea that networks shape behavior most when parental discretion is greatest. Decisions about formal childcare before age three are more closely tied to beliefs about maternal care and early child-rearing. At ages 3-5, childcare is widely perceived in many cultures as part of the standard schooling trajectory, leaving less scope for cultural resistance. This reinforces the idea that early childcare is where cultural preferences are most salient. We explore this and other

potential mechanisms underlying our results in Section 6.3.

6.2 Magnitudes

To benchmark the economic significance of our network effects, we express them in cost-equivalent terms using price elasticities of childcare demand estimated in prior work. That is, we ask how large a change in childcare prices would be required to produce an enrollment response of similar magnitude. We focus on the effect of moving from the mean to the maximum observed enclave size, a contrast that leverages the full range of variation in co-national concentration in our data. As previously mentioned, this contrast implies a 17 percentage-point reduction in childcare enrollment at ages 0-2 (33% relative to the mean).

We draw on Gathmann and Sass (2018), who estimate a compensated price elasticity of childcare demand of approximately -0.6, exploiting a German reform that raised monthly fees and reduced enrollment among two-year-olds by 8 percentage points.[16] Applying their elasticity to our setting, the 33% enrollment reduction implied by moving a family from the average neighborhood to the largest observed enclave is equivalent to a 55% annual increase in price, or roughly $700-900 in the Danish setting.[17]

This comparison is informative precisely because Denmark already maintains one of the most heavily subsidized childcare systems in the world. That variation in co-national concentration generates enrollment differences equivalent to a large price increase underscores the limits of cost-focused policies in closing participation gaps among immigrant populations. Our estimates likely represent a lower bound of network effects in less generous institutional environments.

The mean-to-max effect is also comparable in magnitude to intensive demand-side interventions. For example, Hermes et al. (2025) find that providing lower-SES families in Germany with personalized assistance navigating the childcare application process increases enrollment by 16 percentage points nine months after the intervention —similar in absolute magnitude to our estimate, though from a lower baseline enrollment rate.

Importantly, early childcare is precisely the margin where disadvantaged children stand to gain the most (Cornelissen et al., 2018). Drange and Telle (2015) find that childcare enrollment improves reading and math performance among immigrant children in Norway. Given that network-induced enrollment reductions delay or prevent exposure to formal care during this critical period,

[16] Gathmann and Sass (2018) provide our primary benchmark given their relatively similar institutional context, a European setting with universal childcare availability and substantial public subsidies. Yet, this comparison should be interpreted as illustrative. Havnes and Mogstad (2011) and Cascio (2009) study related margins —crowding out of informal care and kindergarten introduction, respectively —but their settings are less directly comparable to ours.

[17] This range reflects annual parental contributions of approximately $1,250-1,650, based on a co-payment rate of 25-33%. Annual costs are up to $5,000 per slot.

they may generate disparities in school readiness and subsequent educational trajectories (Cornelissen et al., 2018; Gupta and Simonsen, 2010).

6.3 Mechanisms

In this section, we examine mechanisms underlying the main results through heterogeneity analyses along child and municipality characteristics.[18] For brevity, we focus on childcare enrollment at ages 0-2 and 3-5 in the main text; results for total years in childcare between ages 0 and 5 appear in the Appendix (Figures A3 and A4).

Larger enclaves may (i) provide informal care options that substitute for formal childcare, (ii) shape access to or diffusion of information about enrollment procedures and benefits, or (iii) reinforce cultural norms around maternal roles and early childhood care (Caria et al., 2025; Philipp et al., 2025; Ruckdeschel, 2015; Sander, 2024). Understanding the underlying channels is critical for effective policy design. If low take-up reflects informational barriers, then targeted outreach campaigns may suffice. However, if social norms are driving these effects, shifting attitudes will require a deeper strategy.

Informal Childcare Channel We first consider whether co-national networks discourage formal childcare use by providing informal alternatives. Families may rely on informal arrangements through extended family or co-national neighbors if they trust community-based care more than formal institutions (Cornelissen et al., 2018; Schober and Stahl, 2014).

In our setting, within-household informal care by grandparents is rare. Almost no refugee households in our sample include an elderly member, as most arrived or reunified only with their immediate family (spouses and dependent children).[19] This makes within-household informal care unlikely to be a major driver. We therefore proxy informal care availability in the broader network by the share of elderly co-national women in a municipality and split municipalities at the median of this distribution. If informal caregiving substitutes for formal childcare, we would expect the negative effect of network size on enrollment to be larger in neighborhoods within municipalities with a higher share of elderly co-nationals. As shown in the top panel of Figure 2, the estimated effects are directionally more negative in above-median municipalities for ages 0-2, but the estimates are imprecise and statistically insignificant. This points to weak evidence for an informal care mechanism.

[18] We examine heterogeneity along municipality-level rather than neighborhood-level (parish) characteristics because municipalities represent the relevant administrative context in which childcare policy, information campaigns, and public service provision are organized. They thus reflect the broader institutional and cultural environment that may shape access to information, informal care opportunities, and gender norms.

[19] Ideally, we would compare families with and without grandparents in the household, as the latter could be providing informal care, but such cases are absent in our data.

Information Channel A second potential mechanism operates through access to information about formal childcare institutions. Newly arrived refugee families often face language barriers, unfamiliar administrative procedures, and uncertainty about the benefits of early childcare. The structure of the Danish welfare state makes it unlikely that refugee parents are entirely unaware of affordable childcare or basic enrollment procedures. Local general practitioners (GPs) are expected to discuss family well-being and future childcare plans during check-ups, and municipal health visitors (nurses) have provided universal home visits to all families with newborns since the 1960s. These interactions aim to guide parents on children's development and to share information about available services, including formal childcare.[20] Nonetheless, migrant families may still rely on local co-national networks for practical and localized details about the reputation of specific institutions, waiting times, or help completing applications in Danish. We cannot test this directly, but we examine cases where reliance on network-based information about childcare should be lower.

First, we describe how childcare enrollment rates vary with parents' years since migration. If information accumulates through exposure to Danish institutions, enrollment is expected to increase with time spent in the country. Indeed, Figure A5 in the Appendix confirms this pattern, showing that childcare enrollment rises steadily with parents' years since migration (panel a). Children whose parents have lived in Denmark for 6-10 and 11-16 years are significantly more likely to be enrolled in formal care at every age compared to those whose parents have lived in the country for only 1-5 years, also consistent with information accumulation over time (panel b).[21]

Second, we examine heterogeneity by prior household exposure to Danish institutions through older siblings. Specifically, we compare children with and without an older sibling born in Denmark. Such a sibling would have already provided parents with experience navigating the system. As shown in Figure 3, for ages 0-2, the estimated negative network effect is more pronounced when no older sibling is present, whereas the effect is smaller in households with an older sibling, and near zero for ages 3-5. Together with the descriptive increase in enrollment by parents' years since migration, the evidence is consistent with information accumulation playing some role.

Cultural Norms Channel A third mechanism operates through cultural norms around gender roles and early childcare. Co-national networks may reinforce traditional expectations of maternal

[20] For example, the 1995 GP guidelines for the three-year check-up instructed physicians to ask parents whether kindergarten could provide new developmental opportunities for their child and to encourage enrollment when appropriate. The 1996 guidelines went further, advising GPs to discuss when and how the child would begin care outside the home and to explain the benefits of a gradual transition into formal childcare. Similarly, the 1995 Act required municipal nurses to guide parents on child development and available childcare options (Ministry of the Interior and Health, 1995a,b).

[21] We explored using the average tenure of the local co-national network as a proxy for collective experience, but found no significant effect on childcare enrollment. We do not estimate specifications using shares of the network in specific tenure bands (e.g., 0-2, 3-5, 6-10 years since migration) because of limited statistical power.

caregiving, discouraging mothers from enrolling young children in formal care to preserve home-country values or limit exposure to host-country norms.[22] This concern may be especially salient when parents fear that early institutional exposure will accelerate cultural assimilation.

We explore this channel in two ways. First, we examine heterogeneity by child gender. Among children aged 0-2, the negative effect of co-national network size is larger for girls than boys (Figure 3). This pattern aligns with prior research showing that early childhood refugee interventions tend to benefit boys more directly, while girls are more likely to be sheltered by more protective parental behavior (Aslund et al., 2011). In our setting, formal childcare entails care by non-family members and exposure to Danish, Westernized norms, which may be perceived as more problematic for girls, reinforcing the cultural norms interpretation.

Second, we examine whether network effects vary with local gender-norms. Refugees in our sample come from countries with relatively traditional gender norms, including Afghanistan, Iraq, Lebanon, Ethiopia, and Somalia. However, the extent of cultural divergence depends on the local context within Denmark. In areas where traditional gender norms are stronger, enclave and local native norms tend to align, resulting in minimal tension between groups. However, in more gender-progressive areas where early childcare is the norm, parents in large co-national networks may face stronger social pressure to uphold traditional expectations. In that case, networks can reinforce resistance to institutional childcare precisely where host-country and home-country norms diverge the most. These predictions are consistent with the "oppositional identity" model in Bisin et al. (2011) and the cultural distinction versus cultural conformity framework in Bisin et al. (2016).[23] To assess this, we classify municipalities as more or less "gender-progressive" based on three proxies: overall childcare enrollment, the share of divorced individuals, and the average age at first marriage.[24] Across all three measures (Figure 2), network effects tend to be more negative in progressive municipalities. In less progressive areas, where host-country norms more closely align with traditional gender roles, co-national networks have no statistically significant effect. These results are consistent with the cultural norms channel.

Additionally, one might expect information barriers to be lower in municipalities with high overall childcare use. If only information scarcity were driving our results, network effects should be stronger in low-uptake municipalities where information about childcare benefits is presum-

[22] For instance, in Germany, the Expert Council of German Foundations on Integration and Migration finds that the primary reason minority children do not attend early childcare is differences in child-rearing beliefs and the emphasis on German-language acquisition in childcare institutions (Expert Council of German Foundations on Integration and Migration, 2015).

[23] Bisin et al. (2011, 2016) model how ethnic minorities respond to living in more integrated (mixed) neighborhoods in one of two ways. Under cultural conformity, ethnic identity weakens as minorities assimilate into majority norms. Under cultural distinction, parents react to perceived threats by intensifying the transmission of traditional norms to their children. Evidence from the UK supports this distinction mechanism (Bisin et al., 2016).

[24] Municipalities above the distribution median for each measure are considered progressive. As one would expect, these proxies are significantly positively correlated with one another.

ably more limited. Yet, the negative network effect is larger in high-uptake areas, suggesting that networks may be socially isolating. In this sense, the relevant distinction may not be whether information is present, but rather the way it is framed within the network.

Other Channels One additional channel that could, in principle, explain our results is supply-side crowding out if migrant families systematically sought placements in only a few specific childcare institutions. However, we do not consider supply constraints a plausible mechanism in this context. During our study period, migrant families made up only a very small share of the local population (0.004 on average), making it unlikely that co-national enclaves created significant excess demand for daycare slots.[25] Importantly, Danish municipalities must guarantee a childcare place for every child, so families have a right to placement. While parents can indicate preferences for specific institutions within their municipality (typically up to three), they are not guaranteed a particular center, only an appropriate spot within their district. This institutional setup makes it unlikely that selective applications to oversubscribed centers or local capacity constraints could explain the negative effects of co-national networks on childcare enrollment.

Additionally, our baseline specification includes municipality fixed effects, which absorb all time-invariant differences across municipalities in childcare supply, including any variation in capacity or service quality, if any. An additional piece of evidence further suggests that supply-side factors are not driving our results. As discussed in detail in Section 7, we take a step further and estimate a specification with municipality-by-year of assignment fixed effects, thereby capturing any differences in municipal childcare enrollment rate at the time of allocation. In this exercise, the estimated network effects remain stable in magnitude and significance, suggesting that our results are not driven by differences in childcare availability. Overall, our results are likely demand-driven, reflecting differences in parental preferences, information, and norms rather than access to available slots.

A final potential mechanism relates to parental employment. Formal childcare is often complementary to labor market participation, especially for mothers, so it is expected that employment mechanically increases the need for external childcare.[26] Prior research shows that co-national networks facilitate adult labor market entry (Edin et al., 2003; Damm, 2009; Battisti et al., 2022), which in turn could increase formal childcare use. If employment and childcare utilization are very strongly correlated, then we should expect the effect of co-national networks on childcare usage to mirror that of parental employment. However, in our sample, we find no evidence that either the size or quality of co-national networks significantly affects the likelihood that parents are employed while their child is between ages 0 and 5. Furthermore, overall employment rates among

[25] As previously mentioned, there are no data on waiting times, available slots, or waiting lists for our sample period.

[26] Appendix Table A5 confirms that employed parents in our sample have higher childcare enrollment rates, especially when their children are between 0-2 years old.

refugee parents during our study period are very low. Only 16% of mothers and 40% of fathers on average are employed while their child is 0-5 years old.

To probe this further, we split the sample by whether the father was employed before the child's birth (Appendix Table A6).[27] If employment were the relevant channel, the negative network effect should be attenuated among households with stronger labor market attachment. Instead, the results indicate that the network effect is stronger in households with employed fathers. Specifically, a one-standard-deviation increase in enclave size reduces childcare enrollment among children aged 0-2 by 2.7 percentage points and the total number of years in childcare by 0.09 (Columns 1 and 3, $p < 0.05$). In contrast, the corresponding estimates are smaller and not as significant for households with unemployed fathers. Taken together, while parental employment is positively associated with childcare use, co-national networks reduce childcare enrollment through channels unrelated to employment. In fact, the stronger effects among employed-father households further point toward a cultural norms mechanism, as co-national networks may reinforce expectations that mothers remain home with young children.

Overall, our analyses suggest two primary mechanisms through which co-national networks influence childcare enrollment: information transmission and cultural norms. These findings suggest that co-national networks actively shape parents' decisions by mediating access to institutional information, reinforcing social expectations, and in some cases, resisting host-country norms.

7 Robustness

To assess the robustness of our main findings, Table 5 reports a series of alternative specifications and sample definitions. Across all models, the negative association between enclave size and childcare use among children aged 0-2 and the total years spent in formal care remains remarkably stable in both magnitude and statistical significance.

Alternative Specifications Column (1) reproduces our baseline estimates from Table 4, which include municipality-of-assignment fixed effects, year-of-assignment fixed effects, and country-of-origin fixed effects. In Column (2), we replace these with country-of-origin fixed effects, and municipality of assignment - by - year of assignment fixed effects, exploiting variation in co-national networks across neighborhoods within the same municipality of assignment and arrival year. This specification absorbs all time-varying shocks at the municipal level, such as changes in local labor markets or childcare policies. In Column (3), we return to the baseline specification

[27] While formal childcare is often linked to maternal employment, see Section 3 for the rationale for using fathers as focal parents. In addition, female refugee employment is very low in Denmark, so focusing on fathers provides greater statistical power.

and add year-of-birth fixed effects to account for birth cohort differences in childcare eligibility or evolving norms around formal childcare use. Column (4) extends this by adding year-of-birth - by - municipality-of-birth fixed effects, which flexibly control for contemporaneous local childcare supply and labor-market conditions at the time of the child's birth. Across all these specifications, the estimated coefficients remain highly stable, reaffirming that the network effects are not driven by unobserved time-varying factors.

Sample Restrictions In Column (5), we restrict the sample to children born within five years of their parents' arrival in Denmark. This ensures that early childcare decisions were made while the majority of families were still in their assigned location, thereby increasing the salience of local network effects and reducing concerns about residential mobility. The estimates remain unchanged, indicating that differences in fertility timing or exposure duration do not drive the results. Column (6) relaxes the restriction that required children to be observed in both age windows (0-2 and 3-5), instead using an unbalanced panel. This allows us to retain children whose observation windows were truncated either because they arrived in Denmark after age 2 or because the DAGI register (which starts in 1995) does not cover their full early childhood period. The results again remain unchanged.

Across all specifications, the estimated effect of a one standard deviation increase in the share of adult co-nationals on the likelihood of childcare enrollment at ages 0-2 ranges between -1.2 and -1.6 percentage points (2-3 % relative to the sample mean), and between -0.036 and -0.059 years (roughly 3 weeks) for total years in childcare. The effects remain highly statistically significant. In contrast, the effects for children aged 3-5 are small and statistically insignificant from zero across all specifications. The co-national employment rate also shows no robust association with childcare use. Taken together, these results confirm that the negative relationship between enclave size and childcare participation is not sensitive to a wide range of specifications and sample choices. The findings are unlikely to be driven by differential access to childcare services, selective migration, or unobserved municipal shocks.

Placebo treatment Finally, we assess whether our estimated effects could arise spuriously from random correlations in the data. To do so, we conduct a placebo exercise illustrated in Figure A6. We randomly re-shuffle the values of co-national network size and co-national employment rate across neighborhoods and ethnic groups within the same year of allocation and re-estimate equation 1. We repeat this procedure 200 times and plot the resulting distribution of placebo coefficients. Panels (a) and (b) display placebo coefficients for enrollment at ages 0-2, panels (c) and (d) for enrollment at ages 3-5, and panels (e) and (f) for total years in childcare. In each pair, the left panel shows the placebo coefficients for co-national network size and the right panel shows

those for co-national employment rate. The red vertical lines denote the true estimates obtained in Columns (2), (4), and (6) of Table 4. The true coefficient for the network size effect on being enrolled in childcare at ages 0-2 and on the total number of years in childcare lies far in the tails of the placebo distribution, indicating that the main results are highly unlikely to be driven by chance correlations (Panels a and e).

8 Conclusion

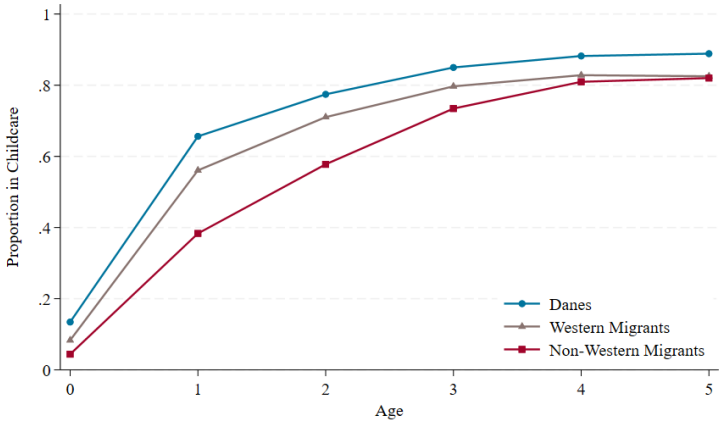
This paper investigates an underexplored determinant of service take-up: the local social network. We study how co-national networks shape refugee families' engagement with formal childcare in Denmark, exploiting quasi-random placement under the country's Spatial Dispersal Policy. We find that larger neighborhood co-national networks reduce formal enrollment, particularly for children aged 0-2. A one-standard-deviation increase in the share of adult co-nationals decreases the likelihood of enrolling in childcare at ages 0-2 by approximately 1.2 percentage points and reduces the time spent in childcare by about 3 weeks. For older children (ages 3-5), the effects are smaller and statistically insignificant. Conversely, the employment rates of co-nationals —a proxy for network quality —do not affect childcare take-up, suggesting that economically integrated networks neither facilitate nor hinder institutional engagement.

Our analyses suggest that these effects operate primarily through information transmission and social norms. Specifically, the negative effect of enclave size is attenuated among families with prior institutional exposure, consistent with the presence of information frictions. At the same time, negative effects are stronger for girls than boys and are concentrated in gender-progressive municipalities.

Our results highlight the importance of the social context for shaping early-life human capital investments and engagement with public services. Even in a universal welfare state that guarantees access to childcare, cultural and informational barriers embedded in local networks can slow take-up. In such cases, policies like Denmark's 2018 mandatory enrollment rule risk backlash if not accompanied by efforts to change perceptions. These findings speak to a broader literature on the dual role of immigrant networks: while they facilitate initial adjustment in the host country, they may also reinforce behaviors that delay integration into host-country institutions.

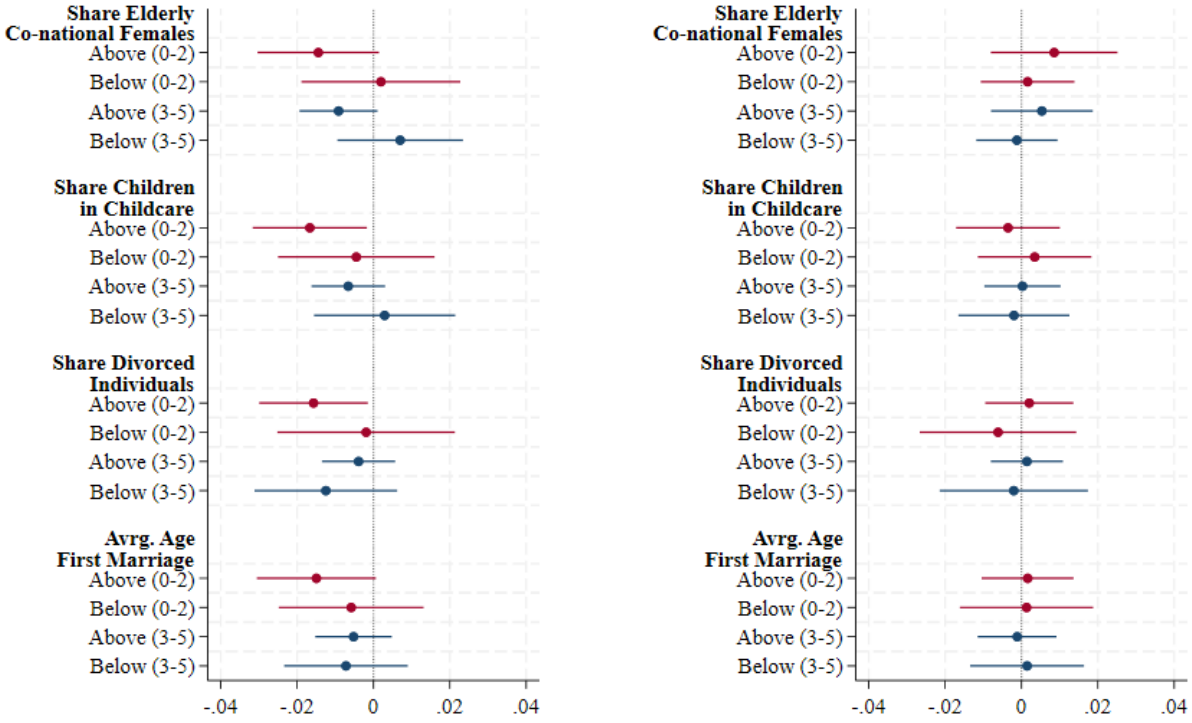
9 Figures

Figure 1: Childcare Enrollment by Age and Origin



Notes: This figure shows the proportion of children enrolled in childcare by age and country of origin. The sample is restricted to children born between 1992 and 2009. Western migrants include individuals from EU28 countries (including Nordic countries other than Denmark), as well as Canada, the United States, and Australia.

Figure 2: Heterogeneous Effects by Municipality Characteristics

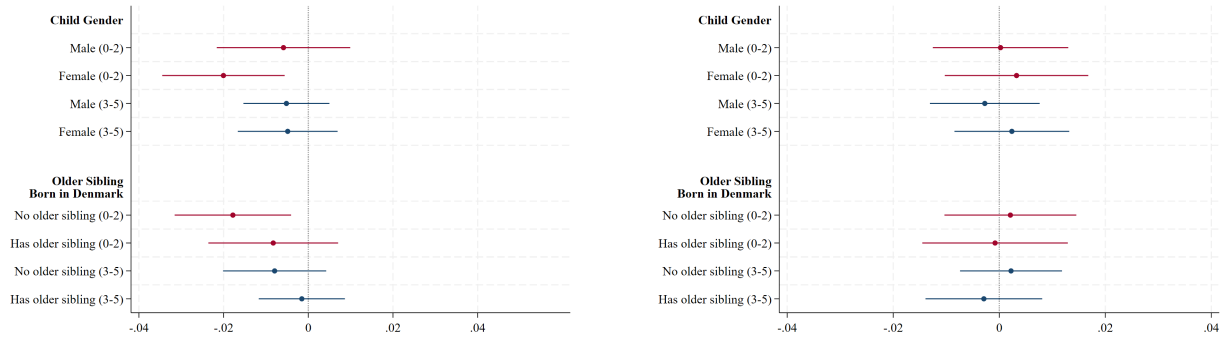


(a) Co-national Network Effect

(b) Co-national Employment Rate Effect

Notes: Each panel shows estimated heterogeneous effects on the likelihood of childcare enrollment, with 95% confidence intervals. The labels (0-2) and (3-5) indicate that the outcome is measured as enrollment at ages 0-2 and 3-5, respectively. Heterogeneity is examined by splitting the sample according to municipality characteristics: share of elderly co-national females, share of children in childcare, share of divorced individuals, and average female age at first birth (above median vs. below median of the distribution). Effects are shown separately for each standardized co-national network measure. All specifications include the full set of baseline controls and fixed effects.

Figure 3: Heterogeneous Effects by Child Characteristics



(a) Co-national Network Effect

(b) Co-national Employment Rate Effect

Notes: Each panel shows estimated heterogeneous effects on the likelihood of childcare enrollment with 95% confidence intervals. The labels (0-2) and (3-5) indicate that the outcome is measured as enrollment at ages 0-2 and 3-5, respectively. Heterogeneity is examined by child gender and the presence of an older sibling who was born in Denmark. Effects are shown separately for each standardized co-national network measure. All specifications include the full set of baseline controls and fixed effects.

10 Tables

Table 1: Summary Statistics - Parents under the Spatial Dispersal Policy

	Mean	S.D.
Characteristics at Immigration		
Age	27.51	6.147
Male	0.75	0.430
Married	0.60	0.490
Number of Family Members	2.02	1.634
Number of Children	0.63	1.255
One Person per Family	0.59	0.492
Education		
Basic	0.34	0.474
Vocational	0.19	0.390
Higher	0.21	0.409
Unknown	0.26	0.439
Year of Immigration		
1986-1990	0.36	0.480
1991-1994	0.31	0.462
1995-1998	0.33	0.471
Origin Country		
Iraq	0.24	0.427
Somalia	0.23	0.418
Lebanon	0.19	0.395
Sri Lanka	0.12	0.327
Iran	0.09	0.286
Vietnam	0.07	0.252
Afghanistan	0.04	0.203
Ethiopia	0.01	0.119
Palestine	0.004	0.061
Observations	8293	

Notes: Summary statistics are presented for the sample of refugee parents who were subject to Denmark's spatial dispersal policy. The sample includes individuals who arrived in Denmark between 1986 and 1998, aged 18-64, from Iraq, Lebanon, Somalia, Iran, Sri Lanka, Vietnam, Afghanistan, and Ethiopia. All refugee characteristics are measured in the year of arrival. We focus on the focal SDP parent, defined as the father, or the mother if the father is not observed. In cases with multiple children per family in our analysis sample, we keep one observation per parent.

Table 2: Summary Statistics - Children

	Mean	S.D.
Characteristics		
Male	0.51	0.500
Born in Denmark	0.91	0.283
Birth Order	2.33	1.565
One Refugee Parent	0.57	0.495
Two Refugee Parents	0.40	0.490
Parents of Same Nationality	0.87	0.335
Outcomes		
In Childcare at Ages 0-2	0.53	0.499
In Childcare at Ages 3-5	0.82	0.382
Years in Childcare	3.01	1.786
Observations	16094	

Notes: This table reports summary statistics for the sample of children aged 0-5 linked to refugee parents subject to Denmark's Spatial Dispersal Policy. This is the analysis sample used throughout the paper. We exclude children whose parent(s) arrived in Denmark as minors, who themselves entered Denmark after age 5, or who were born more than five years before or ten years after the parent's arrival. Children must be observed at least once between ages 0-2 and again between ages 3-5 to ensure a balanced panel. The final sample includes children born between 1992 and 2009.

Table 3: Balance Tests

	(1) Share Adult Co-nationals	(2) Co-national Employment Rate	(3) Population Share	(4) Median HH Income	(5) Employment Rate	(6) Share Poor	(7) Share Kids in Childcare (Mun)
Unobserved at Time of Allocation							
Basic Education	0.029	-0.002	-0.020	0.004	0.014	0.026	0.006
	(0.023)	(0.031)	(0.026)	(0.012)	(0.025)	(0.024)	(0.014)
Vocational Education	0.017	0.061	-0.023	0.010	-0.007	0.022	-0.011
	(0.025)	(0.036)	(0.028)	(0.013)	(0.028)	(0.026)	(0.016)
Higher Education	0.000	0.024	-0.028	-0.004	-0.008	0.028	0.009
	(0.024)	(0.034)	(0.028)	(0.013)	(0.027)	(0.027)	(0.015)
Observed at Time of Allocation							
Male	-0.063*	-0.121***	-0.140***	0.062***	0.102***	-0.044*	-0.022
	(0.027)	(0.025)	(0.021)	(0.012)	(0.024)	(0.020)	(0.012)
Age 26-45 Years	0.005	0.015	0.004	-0.004	0.016	0.009	0.017
	(0.020)	(0.024)	(0.019)	(0.010)	(0.020)	(0.018)	(0.011)
Age 46-63 Years	-0.121*	0.096	0.015	-0.009	0.113	-0.022	-0.024
	(0.053)	(0.093)	(0.090)	(0.039)	(0.075)	(0.071)	(0.041)
Married	0.044*	-0.015	0.028	-0.002	-0.019	0.014	-0.012
	(0.021)	(0.026)	(0.020)	(0.011)	(0.020)	(0.020)	(0.012)
Number of Adults at entry	0.042*	0.046*	0.065***	-0.032***	-0.058**	0.040*	0.013
	(0.021)	(0.023)	(0.017)	(0.009)	(0.018)	(0.016)	(0.010)
Number of Children 0-2 Years Old	-0.053*	-0.050*	-0.034	0.012	0.006	-0.019	0.017
	(0.025)	(0.023)	(0.022)	(0.012)	(0.025)	(0.023)	(0.012)
Number of Children 3-17 Years Old	-0.006	-0.043***	-0.033***	0.019***	0.009	-0.027**	0.000
	(0.012)	(0.010)	(0.009)	(0.005)	(0.010)	(0.008)	(0.005)
F	0.76	1.63	0.36	0.37	0.39	0.50	0.80
Pr > F	0.52	0.18	0.78	0.78	0.76	0.68	0.49
R-sq	0.36	0.28	0.50	0.87	0.43	0.53	0.85
Observations	8,293	8,293	8,293	8,293	8,293	8,293	8,293
Year of Immigration FE	Y	Y	Y	Y	Y	Y	Y
Country of Origin FE	Y	Y	Y	Y	Y	Y	Y
Municipality FE	Y	Y	Y	Y	Y	Y	Y

Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: This table reports results from balancing tests. Each column presents a separate regression testing whether refugees with a given characteristic (listed in the leftmost column) were systematically placed into neighborhoods with specific characteristics (dependent variables). In the last column, the dependent variable is the share of children aged 0-5 enrolled in daycare at the *municipality* level (rather than the neighborhood / parish level). We focus on the focal SDP parent, defined as the father, or the mother if the father is not observed. In cases with multiple children per family in our analysis sample, we keep one observation per parent. Neighborhood characteristics are measured one year prior to assignment. Robust standard errors are used throughout. "F" refers to the F-statistic testing the joint insignificance of education dummies, where the reference group is "missing education".

Table 4: Effect of Co-national Networks on Childcare Take-up

	In Childcare at Ages 0-2		In Childcare at Ages 3-5		Total Yrs in Childcare	
	(1)	(2)	(3)	(4)	(5)	(6)
Share Adult Co-nationals	-0.012**	-0.012**	-0.004	-0.004	-0.049**	-0.049**
	(0.006)	(0.006)	(0.004)	(0.004)	(0.021)	(0.021)
Co-national Employment Rate		0.001		-0.000		-0.004
		(0.005)		(0.004)		(0.019)
Observations	16094	16094	16094	16094	16094	16094
Mean Dep. Var.	0.534	0.534	0.822	0.822	3.006	3.006
Baseline FE	Y	Y	Y	Y	Y	Y
Baseline Controls	Y	Y	Y	Y	Y	Y

Standard errors in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: This table reports the effects of co-national network measures on childcare take-up. The outcome variables indicate whether the child was enrolled in formal childcare between ages 0-2 and 3-5 and the total number of years the child was enrolled in childcare between ages 0-5. All specifications include the full set of baseline controls and fixed effects as specified in equation 1. Standard errors are clustered at the family level.

Table 5: Robustness Checks

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: In Childcare at Ages 0-2						
Share Adult Co-nationals	-0.012** (0.006)	-0.016** (0.007)	-0.012** (0.006)	-0.014** (0.006)	-0.014** (0.007)	-0.012** (0.005)
Co-national Employment Rate	0.001 (0.005)	0.006 (0.006)	-0.000 (0.005)	-0.002 (0.005)	0.002 (0.008)	0.003 (0.004)
Observations	16094	16094	16094	16026	7958	20880
Mean Dep. Var.	0.534	0.534	0.534	0.534	0.478	0.422
Panel B: In Childcare at Ages 3-5						
Share Adult Co-nationals	-0.004 (0.004)	-0.006 (0.005)	-0.004 (0.004)	-0.006 (0.004)	-0.008 (0.006)	-0.002 (0.004)
Co-national Employment Rate	-0.000 (0.004)	0.003 (0.005)	-0.001 (0.004)	-0.003 (0.003)	0.004 (0.006)	0.001 (0.004)
Observations	16094	16094	16094	16026	7958	20880
Mean Dep. Var.	0.822	0.822	0.822	0.822	0.787	0.744
Panel C: Total Years in Childcare						
Share Adult Co-nationals	-0.049** (0.021)	-0.059** (0.024)	-0.046** (0.020)	-0.049** (0.019)	-0.058** (0.026)	-0.036** (0.018)
Co-national Employment Rate	-0.004 (0.019)	0.019 (0.023)	-0.009 (0.019)	-0.014 (0.016)	0.004 (0.028)	0.007 (0.017)
Observations	16094	16094	16094	16026	7958	20880
Mean Dep. Var.	3.006	3.006	3.006	3.006	2.759	2.519
Baseline Controls	Y	Y	Y	Y	Y	Y
Baseline FE	Y	N	Y	Y	Y	Y
Year Immig x Mun FE	N	Y	N	N	N	N
Year of Birth FE	N	N	Y	N	N	N
Year Birth x Mun Birth FE	N	N	N	Y	N	N
Born within 5 Years	N	N	N	N	Y	N
No Sample Restrictions	N	N	N	N	N	Y
Parish of Birth Treat.	N	N	N	N	N	N

Standard errors in parentheses.

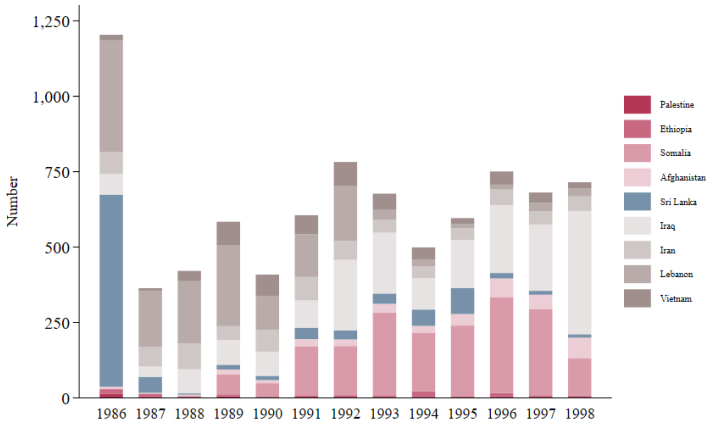
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: This table reports the effect of co-national network measures on childcare enrollment for children aged 0-2 (panel A), children aged 3-5 (panel B), and on total years in childcare between ages 0-5 (panel C). Standard errors are clustered at the family level. Column (1) reports the baseline results. Column (2) replaces municipality and year fixed effects with country-of-origin and year-of-immigration-by-municipality-of-assignment fixed effects. Column (3) adds year-of-birth fixed effects to the specification of Column (1), while Column (4) adds year-of-birth-by-municipality-of-birth fixed effects. Column (5) restricts the sample to children born within five years of the SDP parents' arrival in Denmark. Finally, Column (6) relaxes the requirement of observing children in both age groups, allowing for an unbalanced panel.

Online Appendix

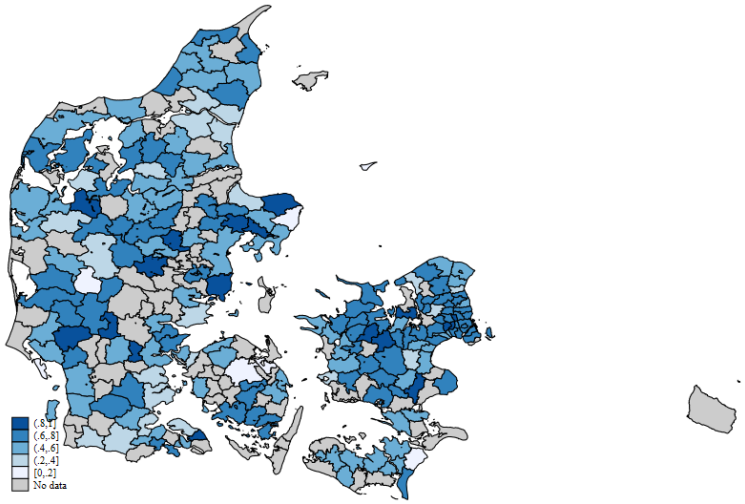
A Supplementary Figures and Tables

Figure A1: Annual Composition of Refugees by Country of Origin

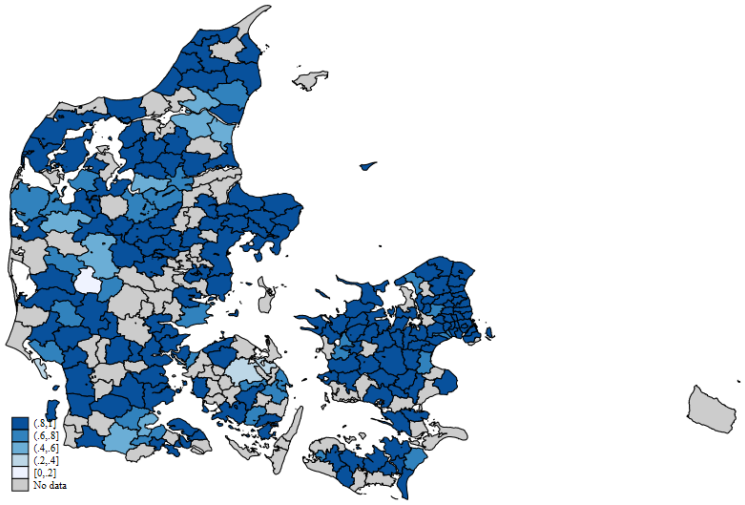


Notes: This figure displays the annual composition of refugees subject to Denmark's Spatial Dispersal Policy by country of origin between 1986 and 1998. The sample includes refugees who are identified as focal parents in our analysis. Each bar represents the total number of focal refugee parents assigned in a given year, disaggregated by the nine largest origin groups in the sample.

Figure A2: Childcare Enrollment Among Refugees across Municipalities in Denmark



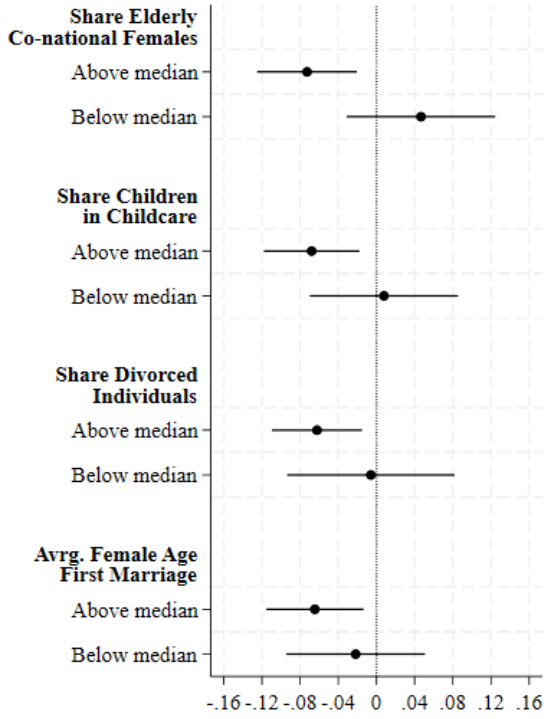
(a) Mean Childcare Enrollment, Ages 0-2



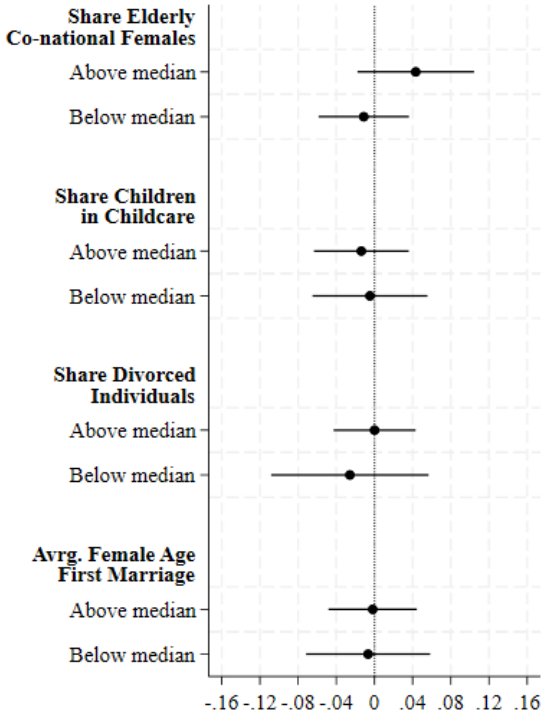
(b) Mean Childcare Enrollment, Ages 3-5

Notes: These figures map average childcare enrollment of children in our sample across Danish municipalities. Municipalities with fewer than three children are excluded to comply with data security requirements.

Figure A3: Heterogeneous Effects on Total Years in Childcare by Municipality Characteristics



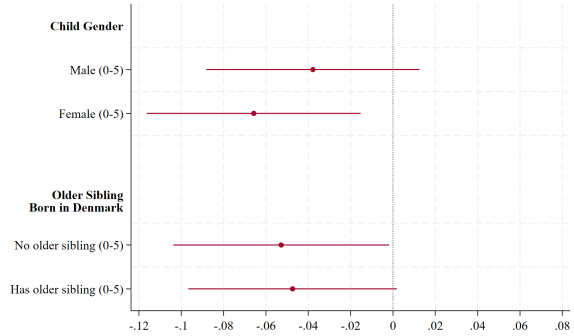
(a) Co-national Network Effect



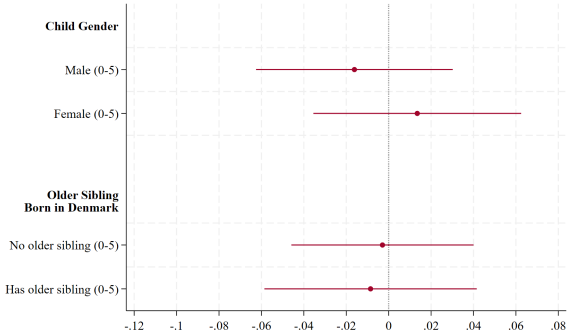
(b) Co-national Employment Rate Effect

Notes: Each panel shows estimated heterogeneous effects on the total number of years in childcare between ages 0-5, with 95% confidence intervals. Heterogeneity is examined by splitting the sample according to municipality characteristics: share of elderly co-national females, share of children in childcare, share of divorced individuals, and average female age at first birth (above median vs. below median of the distribution). Effects are shown separately for each standardized co-national network measure. All specifications include the full set of baseline controls and fixed effects.

Figure A4: Heterogeneous Effects on Total Years in Childcare by Child Characteristics



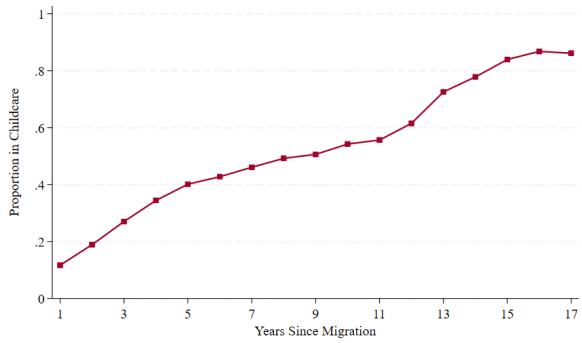
(a) Co-national Network Effect



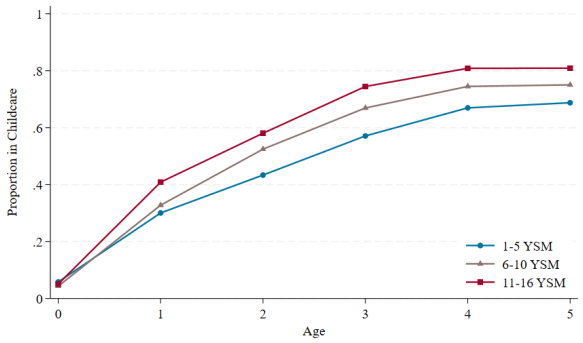
(b) Co-national Employment Rate Effect

Notes: Each panel shows estimated heterogeneous effects on the total number of years in childcare between ages 0-5, with 95% confidence intervals. Heterogeneity is examined by child gender and by the presence of an older sibling born in Denmark. Effects are shown separately for each standardized co-national network measure. All specifications include the full set of baseline controls and fixed effects.

Figure A5: Share of Children in Childcare by Age and Parents' Years Since Migration



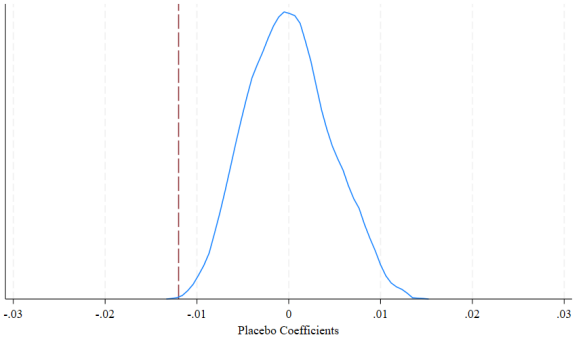
(a) By Parents' Years Since Migration



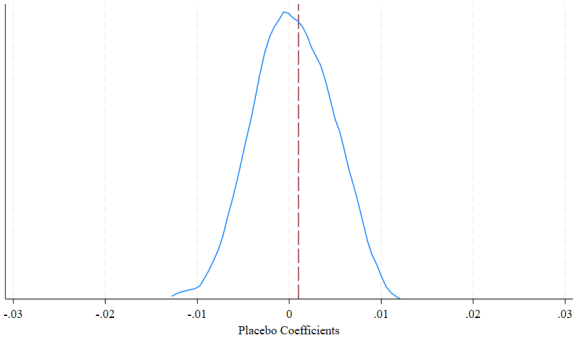
(b) By Age and Parents' Years Since Migration

Notes: Panel (a) shows the average share of children enrolled in formal childcare by parents' year since migration (YSM). Panel (b) shows the average share of children enrolled in formal childcare by age, grouped by parents' year since migration (YSM). YSM is measured as the number of years the focal SDP parent has spent in Denmark at each child's observed age. The sample includes all children in our analysis sample.

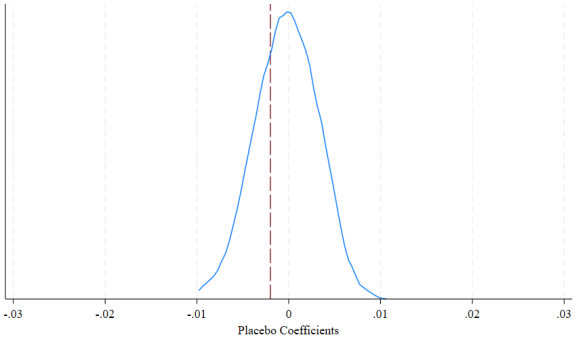
Figure A6: Placebo treatment effects - Re-shuffled Treatment



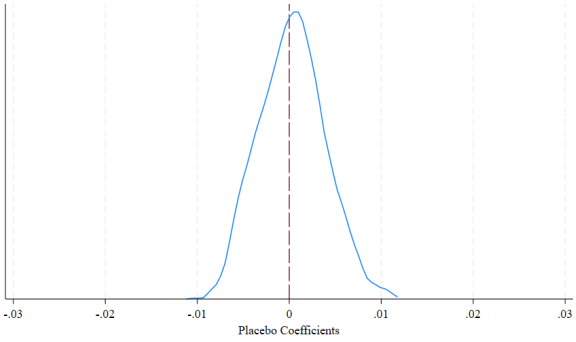
(a) Co-national Network Effect, Ages 0-2



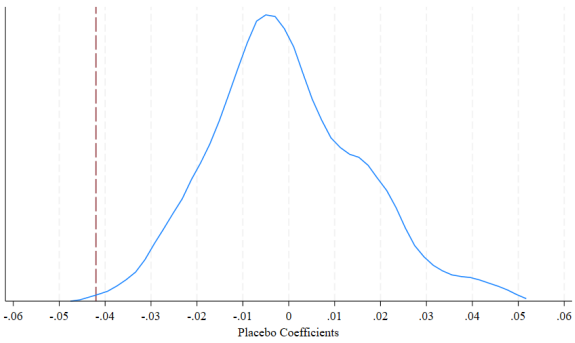
(b) Co-national Employment Rate Effect, Ages 0-2



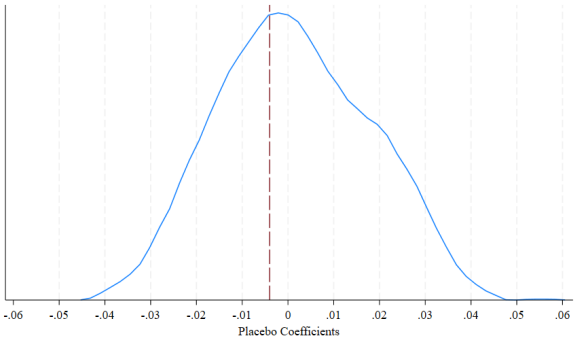
(c) Co-national Network Effect, Ages 3-5



(d) Co-national Employment Rate Effect, Ages 3-5



(e) Co-national Network Effect, Years Childcare 0-5



(f) Co-national Employment Rate Effect, Years Childcare 0-5

Notes: Panels (a), (c) and (e) display the distribution of estimated coefficients for the effect of co-national network size on childcare enrollment (Equation 1) after randomly re-shuffling network size values across parishes and ethnic groups 200 times. Panels (b), (d), and (f) show the corresponding distributions for the co-national employment rate. The vertical red lines indicate the estimates obtained using the true, unshuffled values of the co-national network size and employment rate, as reported in Columns (2), (4) and (6) of Table 4. All specifications include the full set of baseline controls and fixed effects.

Table A1: Summary Statistics - Neighborhood Characteristics

	Mean	S.D.	Min	Max
Share Adult Co-nationals	0.004	0.009	0	0.135
Number Adult Co-nationals	24	61	0	1023
Co-national Employment Rate	0.140	0.222	0	1.000
Co-national Female Employment Rate	0.067	0.172	0	1.000
Observations	16094			

Notes: This table reports summary statistics for the neighborhoods (parishes) of assignment in our analysis sample, describing the size and composition of local co-national networks. All characteristics are measured one year prior to the recorded immigration date of the focal SDP parent.

Table A2: Pairwise Correlation of Neighborhood Characteristics

	(1)	(2)	(3)	(4)	(5)	(6)
(1) Share Adult Co-nationals	1.000					
(2) Co-national Employment Rate	0.116***	1.000				
(3) Co-national Female Employment Rate	0.124***	0.547***	1.000			
(4) Employment Rate	-0.355***	0.031*	0.008	1.000		
(5) Immigrants Employment Rate	-0.330***	0.106***	0.038**	0.540***	1.000	
(6) Share Kids in Childcare (Municipality)	0.032*	0.094***	0.070***	0.205***	0.052***	1.000
Observations	3086					

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Notes: This table reports pairwise correlations between neighborhood-level characteristics. The data are collapsed to the neighborhood-year level, covering the years of refugee arrival from 1986 to 1998. The only exception is childcare enrollment, which is available only at the municipal level for this period.

Table A3: Effect of Co-national Networks on Fertility

	SDP Adults			SDP Females (18-44)			Sample Parents		
	(1) Children Born (5 yrs)	(2) Children Born (10 yrs)	(3) First Child Born (YSM)	(4) Children Born (5 yrs)	(5) Children Born (10 yrs)	(6) First Child Born (YSM)	(7) Children Born (5 yrs)	(8) Children Born (10 yrs)	(9) First Child Born (YSM)
Share Adult Co-nationals	0.023**	0.015	0.020	0.027	0.021	-0.019	0.015	0.011	-0.013
	(0.012)	(0.009)	(0.025)	(0.017)	(0.018)	(0.032)	(0.015)	(0.025)	(0.026)
Co-national Employment Rate	0.001	0.009	0.030	0.008	0.013	-0.029	-0.007	0.012	0.047*
	(0.007)	(0.009)	(0.039)	(0.015)	(0.015)	(0.047)	(0.010)	(0.017)	(0.028)
Observations	23897	23857	15147	7715	7700	5248	8096	8088	8097
Mean Dep. Var.	0.675	1.074	4.658	1.059	1.256	3.104	1.138	1.989	3.860
Baseline FE	Y	Y	Y	Y	Y	Y	Y	Y	Y
Parents Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y

Standard errors in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: This table reports the estimated effects of co-national network measures on three fertility outcomes: (1) the number of children born within five years of assignment, (2) the number born within ten years, and (3) years spent in Denmark before the birth of the first child. The first two panels – "SDP Adults" and "SDP Females" – include all refugees subject to the spatial dispersal policy, regardless of whether their children appear in the main analysis sample. "SDP Adults" includes both adult men and women, while "SDP Females" restricts to women aged 18-44. The final panel, "Sample Parents," focuses on SDP focal parents of children included in our main analysis sample. All specifications include the full set of baseline controls and fixed effects. Standard errors are clustered at the municipality level.

Table A4: Effect of Co-national Networks on Internal Mobility

	(1) Stayed in Initial Parish	(2) Stayed in Initial Parish (1-5 YSM)	(3) Stayed in Initial Parish (6-10 YSM)	(4) Moved to a Parish with Higher Share of Co-Nationals	(5) Moved to a Mun with Higher Childcare Coverage
Share Adult Co-nationals	0.029**	0.029***	0.029**	0.009	-0.002
	(0.011)	(0.010)	(0.011)	(0.007)	(0.001)
Co-national Employment Rate	0.010*	0.011**	0.009*	0.002	0.002
	(0.005)	(0.006)	(0.005)	(0.003)	(0.002)
Observations	7661	8160	7661	7661	7661
Mean Dep. Var.	0.116	0.170	0.144	0.054	0.023
Baseline FE	Y	Y	Y	Y	Y
Parents Controls	Y	Y	Y	Y	Y

Standard errors in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: This table reports the effects of co-national network measures on internal mobility of the focal SDP parent. The outcome variables indicate whether the parent stayed in their assigned neighborhood for up to 10 years after migration (Column 1), for 1-5 years (Column 2), for 6-10 years (Column 3), and whether the parent moved at any point to a parish with a larger share of co-nationals than in their assigned neighborhood (Column 4) or to a municipality with average childcare enrollment higher than that in their initial municipality of allocation (Column 5). These regressions are conditional on parents remaining in Denmark for up to 10 years after migration and include entry characteristics, municipality- and neighborhood-level characteristics, and all baseline fixed effects. Standard errors are clustered at the municipality-level.

Table A5: Childcare Enrollment by Parental Employment Status

	Childcare Takeup	
	Parent Employed	Parent Unemployed
Ages 0-2	0.61	0.50
Ages 3-5	0.84	0.81
Ages 0-5	0.85	0.82
Observations	7493	8601

Notes: This table reports average childcare enrollment rates for children aged 0-2 and 3-5, by whether the focal SDP parent is employed at least once within the respective age range. The sample includes all children in our main analysis sample.

Table A6: Heterogeneous Effects by Father's Employment Status Prior to Birth

	Father Employed Pre-birth			Father Unemployed Pre-birth		
	(1) In Childcare at Ages 0-2	(2) In Childcare at Ages 3-5	(3) Total Yrs in Childcare	(4) In Childcare at Ages 0-2	(5) In Childcare at Ages 3-5	(6) Total Yrs in Childcare
Share Adult Co-nationals	-0.027**	-0.003	-0.091**	-0.009	-0.007	-0.045*
	(0.011)	(0.008)	(0.040)	(0.007)	(0.005)	(0.024)
Co-national Employment Rate	-0.007	-0.009	-0.041	0.005	0.005	0.018
	(0.009)	(0.007)	(0.031)	(0.006)	(0.006)	(0.025)
Observations	4633	4633	4633	11461	11461	11461
Mean Dep. Var.	0.592	0.852	3.258	0.511	0.810	2.904
Baseline FE	Y	Y	Y	Y	Y	Y
Baseline Controls	Y	Y	Y	Y	Y	Y

Standard errors in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Notes: This table reports estimated effects of co-national network measures on childcare enrollment, separately for families in which the father was employed or unemployed prior to the child's birth. Fathers are defined as employed pre-birth if they were employed at least once in the five years before the child's birth. The sample includes all children in our main analysis sample. All specifications include the full set of baseline controls and fixed effects. Standard errors are clustered at the family-level.

B Place effects

To estimate municipality place effects, we run the following model:

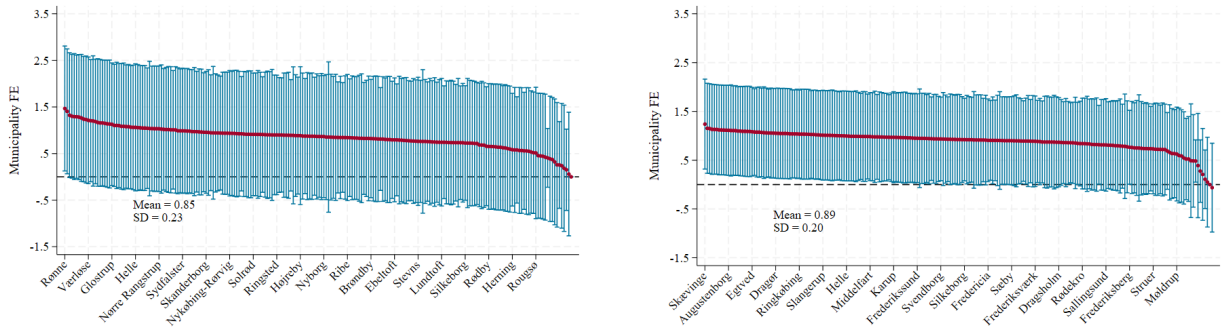
$$Y_{iotm} = \alpha_m + \alpha_t + \alpha_o + \delta X_{it} + \delta Child_i + \Gamma M_{m,t-1} + \epsilon_{iotm} \tag{B1}$$

where Y_{iotm} denotes the childcare outcome for child i, born to focal (SDP) parent from country of origin o, assigned in year t to municipality m. The terms α_m are municipality fixed effects, which we interpret as place effects. We include fixed effects for year of assignment α_t and country of origin α_o. We also control for child-level ($Child_i$) and municipality-level ($M_{m,t-1}$) characteristics, and parent information available to placement officers at assignment (X_{it}). We report results with and without the child- and municipality-level controls. Standard errors are clustered at the family level.

Because refugees were quasi-randomly assigned under the SDP, there is no concern about self-selection into specific locations. Thus, the parameters on α_m can be interpreted as the causal effect of the initial municipality on early childcare take-up. Figure B1 shows these estimated municipality fixed effects on childcare enrollment at ages 0-2 and 3-5, based on regressions that control for child, parent, and municipality characteristics. Estimates using only parent-level controls (Figure B2) yield similar results.

The estimates reveal substantial geographic variation. Some municipalities are associated with significantly higher enrollment rates even after conditioning on observables, while others lag behind. The standard deviation of the municipality fixed effects is 0.21 at ages 0-2 and 0.17 at ages 3-5. To put these magnitudes in perspective, the standard deviation of the childcare enrollment outcome itself is 0.499 at ages 0-2 and 0.382 at ages 3-5.

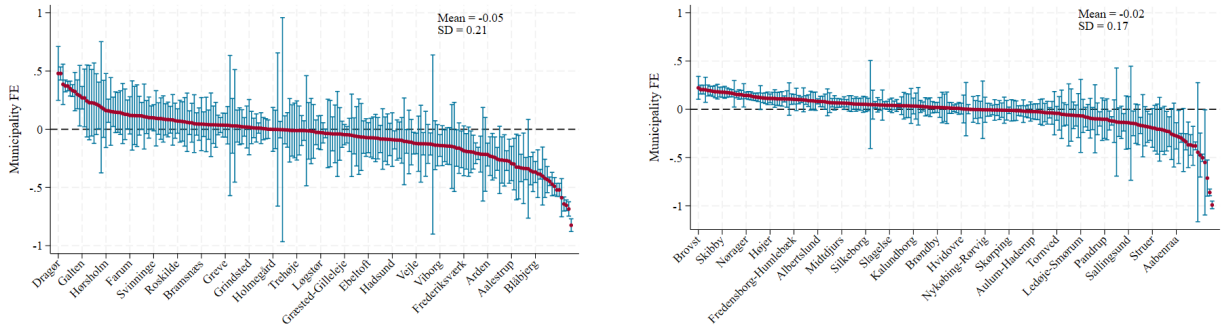
Figure B1: Municipality Fixed Effects in Childcare Enrollment



(a) In Childcare at Ages 0-2 (b) In Childcare at Ages 3-5

Notes: These figures show estimated municipality fixed effects (with 95% confidence intervals) from regressions of childcare enrollment on a set of controls, including child-level characteristics, municipality-level characteristics, and characteristics of SDP parent at time of entry. We also include year-of-immigration and country-of-origin fixed effects. The estimates reflect the residual variation attributable to municipalities after controlling for covariates. The mean and standard deviation of the municipality fixed effects are reported within each panel. There are 216 municipalities in our sample.

Figure B2: Municipality Fixed Effects in Childcare Enrollment



(a) In Childcare at Ages 0-2 (b) In Childcare at Ages 3-5

Notes: These figures show estimated municipality fixed effects (with 95% confidence intervals) from regressions of childcare enrollment on controls of characteristics of SDP parent at time of entry, including year-of-immigration and country-of-origin fixed effects. The estimates reflect the residual variation attributable to municipalities after controlling for covariates. The mean and standard deviation of the municipality fixed effects are reported within each panel. There are 216 municipalities in our sample.

References

Aizer, Anna, "Public health insurance, program take-up, and child health," *The Review of Economics and Statistics*, 2007, *89* (3), 400–415.

Aslund, Olof, Per-Anders Edin, Peter Fredriksson, and Hans Grönqvist, "Peers, neighborhoods, and immigrant student achievement: Evidence from a placement policy," *American Economic Journal: Applied Economics*, 2011, *3* (2), 67–95.

Attanasio, Orazio, Ricardo Paes de Barros, Pedro Carneiro, David K Evans, Lycia Lima, Pedro Olinto, and Norbert Schady, "Public Childcare, Labor Market Outcomes of Caregivers, and Child Development: Experimental Evidence from Brazil," Working Paper 30653, National Bureau of Economic Research 2022.

Bailey, Michael, Rachel Cao, Theresa Kuchler, Johannes Stroebel, and Arlene Wong, "Social Connectedness: Measurement, Determinants, and Effects," *Journal of Economic Perspectives*, August 2018, *32* (3), 259–80.

Battisti, Michele, Giovanni Peri, and Agnese Romiti, "Dynamic effects of co-ethnic networks on immigrants' economic success," *The Economic Journal*, 2022, *132* (641), 58–88.

Bauchmüller, Robert, Mette Gørtz, and Astrid Würtz Rasmussen, "Long-run benefits from universal high-quality preschooling," *Early Childhood Research Quarterly*, 2014, *29* (4), 457–470.

Bhargava, Saurabh and Dayanand Manoli, "Psychological frictions and the incomplete take-up of social benefits: Evidence from an IRS field experiment," *American Economic Review*, 2015, *105* (11), 3489–3529.

Bisin, Alberto, Eleonora Patacchini, Thierry Verdier, and Yves Zenou, "Formation and persistence of oppositional identities," *European Economic Review*, 2011, *55* (8), 1046–1071.

_ , _ , _ , and _ , "Bend it like Beckham: Ethnic identity and integration," *European Economic Review*, 2016, *90*, 146–164. Social identity and discrimination.

Bitler, Marianne, Thurston Domina, and Hilary Hoynes, "Experimental Evidence on Distributional Effects of HeadStart," *NBER Working Paper*, 2014, *20434*.

Blumenstock, Joshua E, Guanghua Chi, and Xu Tan, "Migration and the Value of Social Networks," *The Review of Economic Studies*, 12 2023, *92* (1), 97–128.

Boll, Christina and Andreas Lagemann, "Does culture trump money? Employment and child-care use of migrant and non-migrant mothers of pre-school children in Germany," Technical Report 2018.

Caria, Stefano, Bruno Crepon, Caroline Krafft, and Abdelrahman Nagy, "The barriers to female employment: Experimental evidence from Egypt," 2025.

Cascio, Elizabeth and Diane Schanzenbach, "The Impacts of Expanding Access to High-Quality Preschool Education," *Brookings Papers on Economic Activity*, 2013, pp. 127–178.

Cascio, Elizabeth U, "Maternal labor supply and the introduction of kindergartens into American public schools," *Journal of Human resources*, 2009, *44* (1), 140–170.

_ , "Early childhood education in the United States: What, when, where, who, how, and why 1," in "The Routledge handbook of the economics of education," Routledge, 2021, pp. 30–72.

Chetty, Raj, Nathaniel Hendren, and Lawrence F Katz, "The effects of exposure to better neighborhoods on children: New evidence from the moving to opportunity experiment," *American Economic Review*, 2016, *106* (4), 855–902.

Chien, Nina, "Estimates of Child Care Subsidy Eligibility & Receipt for Fiscal Year 2021," Technical Report, Office of the Assistant Secretary for Planning and Evaluation, U.S. Department of Health and Human Services September 2024.

Chyn, Eric and Kareem Haggag, "Moved to vote: The long-run effects of neighborhoods on political participation," *Review of Economics and Statistics*, 2023, *105* (6), 1596–1605.

Cornelissen, Thomas, Christian Dustmann, Anna Raute, and Uta Schönberg, "Who benefits from universal child care? Estimating marginal returns to early child care attendance," *Journal of Political Economy*, 2018, *126* (6), 2356–2409.

Currie, Janet, "The take up of social benefits," 2004.

_ **and Duncan Thomas**, "Does head start help Hispanic children?," *Journal of public Economics*, 1999, *74* (2), 235–262.

D'Adda, Giovanna, Jessica Gagete Miranda, and Giovanni Righetto, "Social Networks and Labor Market Outcomes: Occupation Matters," *Centro Studi Luca d'Agliano Development Studies Working Paper No. 507*, 11 2025.

Damm, Anna Piil, "The Danish Dispersal Policy on Refugee Immigrants 1986-1998: A Natural Experiment?," 2005.

_ , "Ethnic enclaves and immigrant labor market outcomes: Quasi-experimental evidence," *Journal of Labor Economics*, 2009, *27* (2), 281–314.

_ **and Christian Dustmann**, "Does growing up in a high crime neighborhood affect youth criminal behavior?," *American Economic Review*, 2014, *104* (6), 1806–1832.

Deshpande, Manasi and Yue Li, "Who is screened out? Application costs and the targeting of disability programs," *American Economic Journal: Economic Policy*, 2019, *11* (4), 213–248.

Drange, Nina and Kjetil Telle, "Promoting integration of immigrants: Effects of free child care on child enrollment and parental employment," *Labour Economics*, 2015, *34*, 26–38.

Dustmann, Christian, Albrecht Glitz, Uta Schönberg, and Herbert Brücker, "Referral-based Job Search Networks," *The Review of Economic Studies*, 10 2015, *83* (2), 514–546.

_ **, Mikkel Mertz, and Anna Okatenko**, "Neighbourhood gangs, crime spillovers and teenage motherhood," *The Economic Journal*, 2023, *133* (653), 1901–1936.

Edin, Per-Anders, Peter Fredriksson, and Olof slund, "Ethnic enclaves and the economic success of immigrants—Evidence from a natural experiment," *The Quarterly Journal of Economics*, 2003, *118* (1), 329–357.

Esping-Andersen, Gosta, Irwin Garfinkel, Wen-Jui Han, Katherine Magnuson, Sander Wagner, and Jane Waldfogel, "Child care and school performance in Denmark and the United States," *Children and youth services review*, 2012, *34* (3), 576–589.

Evans, David K., Pamela Jakiela, and Amina Mendez Acosta, "The Impacts of Childcare Interventions on Children's Outcomes in Low- and Middle-Income Countries: A Systematic Review," *AEA Papers and Proceedings*, May 2024, *114*, 463–66.

Expert Council of German Foundations on Integration and Migration, "Hürdenlauf zur Kita: Warum Eltern mit Migrationshintergrund ihr Kind seltener in die frühkindliche Tagesbetreuung schicken," Technical Report, Sachverständigenrat deutscher Stiftungen für Integration und Migration (SVR), Berlin 2015. In German.

Felfe, C., N. Nollenberger, and N. Rodríguez-Planas, "Can't buy mommy's love? Universal childcare and children's long-term cognitive development.," *Journal of Population Economics*, 2015, *28*, 393–422.

Finkelstein, Amy and Matthew J Notowidigdo, "Take-up and targeting: Experimental evidence from SNAP," *The Quarterly Journal of Economics*, 2019, *134* (3), 1505–1556.

Flood, Sarah, Joel McMurry, Aaron Sojourner, and Matthew Wiswall, "Inequality in early care experienced by US children," *Journal of Economic Perspectives*, 2022, *36* (2), 199–222.

Foged, Mette and Giovanni Peri, "Immigrants' Effect on Native Workers: New Analysis on Longitudinal Data," *American Economic Journal: Applied Economics*, April 2016, *8* (2), 1–34.

_ , Linea Hasager, and Giovanni Peri, "Comparing the effects of policies for the labor market integration of refugees," *Journal of Labor Economics*, 2024, *42* (S1), S335–S377.

Gathmann, Christina and Björn Sass, "Taxing childcare: Effects on childcare choices, family labor supply, and children," *Journal of labor Economics*, 2018, *36* (3), 665–709.

Gørtz, Mette, Vibeke Myrup Jensen, and Sarah Sander, "Daycare enrollment age and child development," 2024.

Gupta, Datta Nabanita, Nina Smith, and Mette Verner, "The impact of Nordic countries' family friendly policies on employment, wages, and children," *Review of Economics of the Household*, 2008, *6*, 65–89.

Gupta, Nabanita Datta and Marianne Simonsen, "Non-cognitive child outcomes and universal high quality child care," *Journal of public Economics*, 2010, *94* (1-2), 30–43.

_ and _ , "Academic performance and type of early childhood care," *Economics of Education Review*, 2016, *53*, 217–229.

Hasager, Linea and Mia Jørgensen, "Sick of Your Poor Neighborhood? Quasi-Experimental Evidence on Neighborhood Effects on Health," Technical Report, IZA Discussion Papers 2024.

Havnes, Tarjei and Magne Mogstad, "No child left behind: Subsidized child care and children's long-run outcomes," *American Economic Journal: Economic Policy*, 2011, *3* (2), 97–129.

_ and _ , "Is universal child care leveling the playing field?," *Journal of Public Economics*, 2015, *127*, 100–114.

Heckman, James J, Seong Hyeok Moon, Rodrigo Pinto, Peter A Savelyev, and Adam Yavitz, "The rate of return to the HighScope Perry Preschool Program," *Journal of public Economics*, 2010, *94* (1-2), 114–128.

Hermes, Henning, Philipp Lergetporer, Frauke Peter, and Simon Wiederhold, "Application barriers and the socioeconomic gap in child care enrollment," *Journal of the European Economic Association*, 2025, *23* (3), 1133–1172.

Jessen, Jonas, Sophia Schmitz, and Sevrin Waights, "Understanding day care enrolment gaps," *Journal of Public Economics*, 2020, *190*, 104252.

Karademir, Sencer, Jean-William Laliberté, and Stefan Staubli, "The Multigenerational Impact of Children and Childcare Policies," *Journal of Labor Economics*, Forthcoming.

Katz, Lawrence F, Jeffrey R Kling, and Jeffrey B Liebman, "Moving to opportunity in Boston: Early results of a randomized mobility experiment," *The Quarterly Journal of Economics*, 2001, *116* (2), 607–654.

Kulshreshtha, Shobhit, "The Effect of Initial Location Assignment on Healthcare Utilization of Refugees," 2024.

Leibowitz, Arleen, Jacob Alex Klerman, and Linda J Waite, "Employment of new mothers and child care choice: Differences by children's age," *Journal of Human Resources*, 1992, pp. 112–133.

Lokshin, Michael, "Household childcare choices and women's work behavior in Russia," *Journal of Human Resources*, 2004, *39* (4), 1094–1115.

Ludwig, Stephan, Ko De Ruyter, Mike Friedman, Elisabeth C Brüggen, Martin Wetzels, and Gerard Pfann, "More than words: The influence of affective content and linguistic style matches in online reviews on conversion rates," *Journal of marketing*, 2013, *77* (1), 87–103.

Ministry of the Interior and Health, "Executive Order on preventive health schemes for children and young people, BEK no. 846, https://www.retsinformation.dk/eli/retsinfo/1995/15082," Technical Report 1995.

_ , "Preventive health programs for children and adolescents - Guidelines, RTL no. 15082, https://www.retsinformation.dk/eli/retsinfo/1995/15082," Technical Report 1995.

OECD, "OECD Family Database: Enrolment in Childcare and Pre-School (PF3.2)," Technical Report, Organisation for Economic Co-operation and Development, Paris 2019. Accessed January 2026.

_ , "PF2.5: Trends in Leave Entitlements around Childbirth—Annex," OECD Family Database, OECD, Paris 2022.

Philipp, Marie-Fleur, Silke Buechau, Pia Schober, Viktoria Werner, and C. Katharina Spiess, "How Daycare Quality Shapes Norms Around Daycare Use and Parental Employment: Experimental Evidence from Germany," *IZA Discussion Paper No. 16729*, 2025.

Ruckdeschel, K., "Verantwortete Elternschaft: "Für die Kinder nur das Beste"," in N. F. Schneider, S. Diabaté, and K. Ruckdeschel, eds., *Familienleitbilder in Deutschland. Kulturelle Vorstellungen zu Partnerschaft, Elternschaft und Familienleben*, Verlag Barbara Budrich, 2015, pp. 191–206.

Sander, Sarah, "Universal Daycare and Mother's Working Lifetime," *CEBI WORKING PAPER SERIES*, 2024, (ISSN 2596-447X).

Schober, Pia S and Juliane F Stahl, "Childcare trends in Germany: Increasing socio-economic disparities in East and West," *DIW Economic Bulletin*, 2014, *4* (11), 51–58.

Seibel, Verena and Troels Fage Hedegaard, "Migrants' and natives' attitudes to formal childcare in the Netherlands, Denmark and Germany," *Children and Youth Services Review*, 2017, *78*, 112–121.

Tolaj, Cyme, "Child well-being and the welfare state: a comparative analysis of poverty, child care, and child protection across welfare regimes," 2022.

Versi, Jamila, "Denmark's 'ghetto plan' and the communities it targets," jan 2020. Accessed: 2025-10-23.