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### Daycare Choice and Ethnic Diversity: Evidence from a Randomized Survey

Mongoljin Batsaikhan, Mette Gørtz, John Kennes, Ran Sun Lyng, Daniel Monte and Norovsambuu Tumennasan

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*February 5, 2019*

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## 1. Introduction

The city of Copenhagen seeks to offer a diverse set of independently managed, publicly funded daycare facilities that match the diverse needs of its parents and their children. The city of Copenhagen also operates a centralized assignment mechanism that gives parents a free choice over all daycares in the city subject to capacity constraints. In general, the centralized assignment mechanism solves the problem of capacity constraints by always assigning a higher priority to the parent who has chosen a particular daycare facility to the oldest child in the queue. Therefore, given the nature of this assignment mechanism, the city does not directly control the peer composition at each daycare (Kennedy et al., 2014).

In this paper, we discuss the results of a survey that we developed in consultation with the city of Copenhagen as a means to help understand how daycare attributes interact with parental choices. The randomized part of the survey was designed to study how parents of different social and economic backgrounds choose daycares and how their choices are impacted by the choices of others. The nature of the survey and its conclusions are of interest to municipalities and local governments that struggle with the sometimes conflicting objectives to offer diverse daycare options, diverse peer groups within daycares, and free parental choice. We present both negative and positive results related to these objectives.

Our study is related to a large literature on the explanation and impact of discrimination and segregation. Conflict between different ethnicities and races can persist for long periods of time and span many generations (Voigtländer & Voth, 2012; Acharya, Blackwell & Sen, 2016). In already segregated societies, exposure to diversity is naturally limited. Interaction with people of diverse backgrounds changes one's perception of others, reduces bias against ethnic minorities and encourages interracial social bonding (Allport et al., 1954; Boisjoly et al., 2006; Dobbie & Fryer, 2015; Carell et al. 2016<sup>2</sup>). In such a cycle, parents play an important role, not only directly by transferring their own attitudes about other racial and ethnic groups to their children, as described in Bisin & Verdier (2001), but also indirectly by deciding to what extent their children are exposed to diversity through their choice of neighborhood of residence and selection of daycares and schools for their children.

Our randomized online survey was administered by Statistics Denmark (the Danish National Statistical Office) in 2014 to 2,494 parents of newborn children in Copenhagen. As part of the survey, parents were asked to choose from two distinct types of daycares with differing degrees of formally structured activities.<sup>3</sup> The descriptions of each of the two daycares were given in the form of three testimonials from (fictive) parents

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<sup>2</sup> Similar studies within economics include Van Laar et al. (2005), Beaman et al. (2009), and Clingingsmith et al. (2009). In addition, Pettigrew & Tropp (2006) summarize the empirical evidence on intergroup contact theory.

<sup>3</sup> The survey asked parents a broad battery of questions into their preferences and actual choices regarding daycares for their young children. We were able to compare some of the statements made in the survey to actual choices of daycares given in the administrative registers, thus verifying survey responses. See section 5.

whose child allegedly attended the institution. While one daycare was depicted as a more structured type of daycare with scheduled educational activities, the other was associated with a more free-play pedagogical profile<sup>4</sup>. Testimonials for the free-play daycare depict a daycare typically encountered and favored in Nordic countries while those for the structured institution describe a classic well-structured daycare which is also in demand among some Danish parents and preferred in many other cultures. To detect discrimination against ethnic minorities, we randomized the names of the (fictive) testifying parents across the treatments such that in some institutions all the testifiers had typical “Danish” names while in others, one of the testifiers’ names was associated with ethnic minorities. Furthermore, to check whether eventual discrimination depends on the minority children’s family background, in some treatments parents also received information about the profession of the alleged testifying parents. The survey is described in more detail in section 2.

Our results reveal that parental choices change if an ethnic minority name appears in the testimonial for daycares. This result is more pronounced if the minority name appears in testimonial for the structured institution. In this situation, the probability of selecting the structured institution decreases. These results suggest that parents who prefer the structured daycare type display biased attitudes against minorities. We further explore whether this behavior reflects animosity towards minorities (indicating pure discrimination) or is simply due to a notion that a higher minority share in a daycare may be a sign to parents that the children in the daycare have poor language skills (Danish) or that the daycare has less resources for activities fostering child development if it has to spend more time on children with poor language skills. We test this by providing information in testimonials on testifiers’ professions (implying high levels of education) and find that information on profession does not significantly reduce discrimination. Given that this effect is not statistically significant, we cannot rule out that the discrimination observed is statistical in its nature. However, as discriminatory behavior is not significantly reduced when including information on profession, this result provides a - weak - indication of taste-based discrimination.

The question we asked about preference for structured versus free-play daycare is a dichotomous question, and variation in choices for daycare type depending on names mentioned in the testimonials reflect a situation where discriminating is costless for the discriminator. In order to introduce a “price tag” on discrimination choices, or, using Gary Becker’s (1957) expression, to put a “price of prejudice”, we asked parents how much they valued the daycare that they had initially chosen in terms of how far they would be willing to travel to get to their preferred daycare rather than the other type of daycare. Exploiting the variation in willingness-to-travel (WTT) to the initially favored daycare across different versions of the testimonials, we obtain a measure of the “price of prejudice”.

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<sup>4</sup> Two daycares were labeled as A versus B, not as “structured” versus “free-play”. However, the description made a clear distinction in how structured their pedagogy was. The full description of daycares can be seen in Table 1.

Our contribution is noteworthy in several ways. First, real life data on school choice is often contaminated with many traits that are not under researchers' control. We do not encounter this problem because our survey design explicitly controlled the information provided to the parents through randomization. For instance, in an uncontrolled setting, parents may know that schools in districts with a high proportion of ethnic minorities are of low quality (while the same information is not available to researchers).<sup>5</sup> Parents' avoidance of such schools should not be attributed to discrimination. In our survey, the quality of the institutions is constant across treatments. Moreover, if parents associate low quality with ethnic diversity then it is still a form of (statistical) discrimination.

Second, we find discrimination against ethnically diverse daycares among parents who prefer a specific type of daycare. While discrimination among individuals has been well documented in the literature,<sup>6</sup> our study is the first to document how parental preferences for a specific teaching style (structured or free-play) interact with discriminatory attitudes. This result sheds some light on who is more likely to discriminate and whose offspring may consequently inherit the discriminatory attitudes of their parents. Moreover, this asymmetric response from parents in the form of discriminatory tastes has implications for the design of school choice policies. Many European countries struggle to find a school assignment system that balances both parental preferences and the societal goal of reducing socioeconomic inequalities and ethnic clustering.

Third, we find suggestive evidence to identify the type of discrimination. Economists categorize discrimination into two types: statistical and taste-based (Becker, 1971; Phelps, 1972; Arrow, 1973; Arrow, 1998). While taste-based discrimination occurs due to animus towards members of another group, statistical discrimination results when race or ethnicity is a proxy for other variables that determine one's decision or action. Through our survey design, we exogenously varied the information available by exposing some respondents to information on the professions of the testifying parents. Given that education is highly correlated with profession, one might expect that including the profession in the testimonials presented in our survey would reduce discriminatory attitudes. However, we did not find any significant difference in the degree of discriminatory behavior depending on whether they survey gave information on the profession of the individuals who had given testimonials of the daycares, thus perhaps providing suggestive evidence for taste-based discrimination.

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<sup>5</sup> The achievement gap in education as well as strong ethnic segregation in primary schools has been documented for a number of European countries, including Britain (Dustmann, Machin, & Schönberg, 2010), France, Germany (Algan, Dustmann, Glitz, & Manning, 2010) and Denmark (Rangvid, 2007)

<sup>6</sup> See, for example, Bertrand and Mullainathan's (2004) landmark paper using a correspondence survey. Similar studies finding person-to-person discrimination include Carlsson & Rooth (2007) in Sweden, Kaas & Manger (2012) in Germany, Weichselbaumer (2016) in Austria, Eckel and Petie (2011) in the United States, Behaghel, Crépon & Le Barbanchon (2015), and more generally Edelman, Luca & Svirsky (2017), Gneezy, List & Price (2012), Levitt (2005), List (2004), and Yinger (1998).

Fourth, we find that the willingness-to-travel to the favored daycare is higher if the respondent prefers the structured daycare, and if an ethnic minority name was included in the testimonial for the free-play daycare, suggesting that an ethnic minority child in free-play daycare “pushes” respondents towards the structured daycare.

## **2. Institutional setting, data and experimental design**

### ***Institutional setting: daycares and daycare choice***

Danish municipalities provide heavily subsidized universal daycare to all children between the ages of 0 and 6: nursery centers for 0 to 3 years-olds and preschools for 3 to 6 years-olds. Some daycares provide both a nursery and preschool; usually in separate divisions. As an alternative for the youngest children (0 to 3 year-olds), municipalities also organize child minders (family daycare), usually in her or his private home (Gørtz, 2012; Gørtz & Andersson, 2013). Public daycare is highly subsidized: parents pay 20-30% of the full cost of daycare with the exact percentage varying across municipalities. All institutions within a municipality charge the same fee. Low-income families below a certain threshold receive free daycare service. The staff in both nurseries and preschools consists of trained teachers and assistants; more than one in two staff members hold a bachelor’s degree in pedagogy, while the other half are assistant pedagogues with some formal training.<sup>7</sup> Around one in ten staff members is male.

Each municipality is responsible for the allocation of slots within subsidized daycare institutions. The allocation rules differ across municipalities but all parents who want a spot in a daycare for their young child must first submit a list of preferred institutions. More popular daycares have waiting lists, and open slots are distributed to children almost solely according to date of birth. The municipality administers the final allocation based on the waiting lists. Denmark has the highest daycare participation rate among the 0-3 year olds in Europe; around 2 out of 3 children in this age group were enrolled in subsidized formal childcare in 2014 (OECD, 2018). All subsidized daycare arrangements are subject to municipal supervision. Danish daycare institutions are generally considered to be of high quality (Bauchmüller et al., 2014; Esping-Andersen et al., 2012; Datta Gupta & Simonsen, 2010; Gørtz et al., 2018). They follow the Scandinavian

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<sup>7</sup> Previously, pedagogical assistants were often unskilled workers, who over time would receive some additional training. In recent years, however, vocational education for pedagogical assistants has been initiated. The program lasts 3-4 years with enrollment normally taking place immediately after lower secondary school.

pedagogical philosophy, which is child-centered and focuses on socialization rather than the development of early academic skills. The program stresses the importance of learning through play, creativity, social inclusion, outdoor activities, parental involvement, language development, nutrition, and physical exercise. Despite these common elements in the overall pedagogical approach, there is variation among institutions in terms of their pedagogical focus. Daycares are obligated to develop independent pedagogical learning plans and establish the institution's goals and practices. Thus, while some institutions might favor outdoor activities, others focus more on creative skills and musical activities. Institutions post their learning plan, pedagogical approach, and information on general activities on their websites. Parents use this information when filling out their list of preferred daycare institutions.

## ***Data***

The data used in this paper are from the Copenhagen Daycare Survey, which we constructed and collected for the project. The survey provides information on preferences and choices of parents who are in the process of enrolling their young children for the first time in daycare in Copenhagen. The survey was carried out by Statistics Denmark in the summer of 2015 among a sample of 5,000 randomly drawn households in Copenhagen with children born in 2014. The survey, which was web-based, was sent to the household, and either parent could fill it out.<sup>8</sup> Out of the 5,000 households, 2,494 responded, translating into a response rate of almost 50 percent. The survey consisted of a broad battery of questions related to which daycares in Copenhagen the parents had or would sign up their child to, what characteristics of daycares that the parents considered to be important for that choice, and how parents weighed quality in daycares e.g. compared to their need to return to work. The empirical analysis in this paper focuses on a particular question in the survey in which parents were asked to state their preference relative to two distinct daycare institutions that each represent some typical characteristics of Danish daycares.<sup>9</sup>

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<sup>8</sup> In 3 out of 4 cases, the mother answered the questionnaire.

<sup>9</sup> Before running the survey, we discussed the survey and its questions extensively with staff from the administrative unit in Copenhagen that is responsible for the allocation of daycare spots to parents. Moreover, in cooperation with Statistics Denmark, we conducted a careful pilot study to test the relevance of the questionnaire and check whether the questions were seen as meaningful and understandable by potential respondents in the target group of the survey.

We later merged the survey data with administrative register data in Statistics Denmark to obtain background information such as education, employment situation, and income for parents in the survey. It was possible to link 2,179 survey respondents who had answered our key question for this paper to relevant socioeconomic register information. This group, who thus responded to the key question and for whom we have a full set of relevant controls (including key demographic information on both parents of the child), makes up our main sample. The gender distribution of children in the completed survey is divided almost equally by gender. The age of the children ranges from 7 to 19 months at the time of the survey, with a mean age of 13 months.

Given that it is possible to link 4,885 out of the entire sample of 5,000 individuals that were initially drawn from Statistics Denmark's registers to socioeconomic information in the registers, we are able to compare the background information of parents who completed the questionnaire with that of the entire sample of randomly selected parents (see Table A1 of the Appendix). On average, the parents who completed the questionnaire (shown in columns 1-2) are more educated and more likely to be employed than the average parents in the total sample. In addition, they are slightly more likely to be living in a nuclear family and consequently less likely to be single parents.<sup>10</sup> Ethnic minority parents are slightly underrepresented, which is a well-known pattern from other surveys. However, all groups are represented in the survey, and differences in socioeconomic indicators across respondents and non-respondents are not overly large.

The option to link survey and register data also allowed us to carefully compare some of the responses given in the survey to actual choices of daycares. It was possible to link almost all the survey respondents to the register data. Moreover, we obtained access to administrative records on daycare waiting lists and assignment in Copenhagen. In section 5, we verify some of the statements regarding choices of daycares that were put forward in the survey with the actual choices that parents had submitted to the municipality administration regarding preferences for daycares.

### ***Preferences for daycare type and experimental design***

As mentioned, our key question concerns parental preferences for two distinct types of daycare institutions. The survey asked parents to choose between two distinct daycares; daycare A and

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<sup>10</sup> The questionnaire included a number of additional questions regarding e.g. how long the child had been breastfed, length of maternity and paternity leave, intra-household allocation of housework and childcare, the family's employment situation and expectations for the future.



daycare B. Henceforth, we mainly refer to A as the “structured” daycare and B as the “free-play” daycare for convenience, although the questionnaire did not present these names to the parents. Parents were given a description of the daycares in the form of testimonials from parents whose child could have attended that daycare. The questionnaire informed respondents that the daycares were fictive, but that the daycares represent realistic and typical features of daycares in Denmark.<sup>11</sup> Hypothetical questions that are meant to elicit preferences are quite standard in large surveys as e.g. the Health and Retirement Study (HRS) or European Values Survey (Michaud, van Soest, & Bissonnette, 2018) (Berggren & Nilsson, 2013). Table 1 below presents the testimonials provided in the questionnaire.

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<sup>11</sup> We verify that survey responses are consistent with actual choices in section 5.

**Table 1: Testimonials about the two daycares in survey**

Daycare A “Structured” daycare	Daycare B “Free-play” daycare
<p><i>“The daycare has a structured plan, with activities organized for all days.”</i></p> <p>(Parent I)</p>	<p><i>“There are lots of opportunities for creative play and a focus on joint play and cooperation.”</i></p> <p>(Parent IV)</p>
<p><i>“I like that stories are often read aloud, and the children are encouraged to talk about their play and games with the teachers.”</i></p> <p>(Parent II)</p>	<p><i>“I like that the children were outside most of the time. The daycare might seem a bit messy and chaotic at times, and my child often came home with dirty clothes, but I saw that as a sign of having been outside a lot.”</i></p> <p>(Parent V)</p>
<p><i>“The daycare is always clean and organized. They issue a weekly newsletter, which makes it easy for me to coordinate our own activities and plan the week.”</i></p> <p>(Parent III)</p>	<p><i>“The personnel are fantastic. One can always go to them, and they take the time to talk about my child’s development.”</i></p> <p>(Parent VI)</p>

After presenting these testimonials, we then asked parents the following question:

*“Given the descriptions of daycare A and B, which of the two daycares do you prefer, A or B?”*

All respondents were given the exact same descriptions of the institutions, but as part of our experimental approach, we provided different information on the individuals who had allegedly provided the testimonials (“Parent I” to “Parent VI” in Table 1).<sup>12</sup> Specifically, we randomly distributed different names and, in some cases, professions of the testifiers across the sample of respondents. In total, there were seven name-profession combinations, leading to seven “treatments” that were each randomly distributed to 1/7 of the population in the survey. Some respondents were only exposed to testimonials by individuals with typical Danish names, while others were exposed to testimonials by individuals with names that are typically associated with people of ethnic minority origin. Our seven treatments varied the names and professions of the testifiers as follows:

<b>Treatment</b>	<b>Description</b>
0 <i>NoNames</i>	No names, no professions
1 <i>AllDanes_NoProf</i>	All Danish names, no professions
2 <i>MinoFree_NoProf</i>	Danish names for five testifiers, ethnic-minority name for one testifier of institution B (free-play), no professions
3 <i>MinoStruc_NoProf</i>	Danish names for five testifiers, ethnic-minority name for one testifier of institution A (structured), no professions
4 <i>AllDanes_Prof</i>	All Danish names, information on profession
5 <i>MinoFree_Prof</i>	Danish names for five testifiers, ethnic-minority name for one testifier of institution B (free-play), information on profession
6 <i>MinoStruc_Prof</i>	Danish names for five testifiers, ethnic-minority name for one testifier of institution A (structured), information on profession

Our main interest is to investigate how parental preference for structural vs. free play daycares varies with name and profession of the people behind the testimonials presented in treatments 1-6. In treatments 1 and 4 – *AllDanes\_NoProf* and *AllDanes\_Prof* – testifiers had only typical Danish names while in treatments 2, 3, 5 and 6 (*MinoFree\_NoProf*, *MinoStruc\_NoProf*, *MinoFree\_Prof*

<sup>12</sup> This question is one of many similar queries in the same section of the survey. Respondents were then asked to choose one of the two for each question in the section. However, only the one question analyzed here is randomized across subjects.

and *MinoStruc\_Prof*) one of the testifiers had an ethnic minority sounding name for. As a control, treatment 0 contained no information about the testifiers.

As mentioned in the Introduction, economists categorize discrimination into two types: taste-based (sometimes referred to as pure) and statistical. In the former, individuals discriminate against members of a certain group because of a potential disutility of being exposed to that particular group. In the latter, having limited information on individuals outside one's group may lead some people to discriminate against others because of the group's common traits. For example, parents selecting daycares for their children may worry that ethnic minority children have deficient language skills and may have parents with limited employment and educational skills. We thus hypothesize that providing (additional) information about testifiers' profession may potentially reduce bias against choosing a daycare with ethnic minorities. In treatments 1-3, we provided the names but not the professions of the testifiers, while in treatments 4-6 we provided both their names and professions, which are highly correlated with their educational level. In particular, testifiers with ethnic minority names were either said to be journalists or teachers, which typically require a master's degree. By comparing responses to treatments 1-3 (*AllDanes\_NoProf*, *MinoFree\_NoProf*, and *MinoStruc\_NoProf*) to treatments 4-6 (*AllDanes\_Prof*, *MinoFree\_Prof*, and *MinoStruc\_Prof*), we are able to test whether the discrimination is statistical, where the missing information is the education and profession of the parents.

Table 2 provides an overview of the information given about the testifiers of the two daycares.

**Table 2: Overview of information given to respondents about sources of testimonials on daycare A (“structured”) and B (“free-play”)**

	Daycare A: "Structured"			Daycare: "Free-play"		
	Parent I	Parent II	Parent III	Parent IV	Parent V	Parent VI
<b>0 NoNames</b>	No name	No name	No name	No name	No name	No name
<b>1 AllDanes_NoProf</b>	Søren P father of Esther	Birthe mother of Emil	Lene K mother of Camilla	Torben M father of Mai	Mette mother of Emma	Helle G mother of Per
<b>2 MinoFree_NoProf</b>	Søren P father of Esther	Birthe mother of Emil	Lene K mother of Camilla	Torben M father of Mai	<b>Hoda</b> <b>mother of Walid</b>	Helle G mother of Per
<b>3 MinoStruc_NoProf</b>	Søren P father of Esther	<b>Hoda</b> <b>mother of Walid</b>	Lene K mother of Camilla	Torben M father of Mai	Mette mother of Emma	Helle G mother of Per
<b>4 AllDanes_Prof</b>	Søren P father of Esther architect	Birthe mother of Emil Journalist	Lene K mother of Camilla student	Torben M father of Mai professor	Mette mother of Emma high school teacher	Helle G mother of Per public employee
<b>5 MinoFree_Prof</b>	Søren P father of Esther architect	Birthe mother of Emil Journalist	Lene K mother of Camilla student	Torben M father of Mai professor	<b>Hoda</b> <b>mother of Walid</b> <b>high school teacher</b>	Helle G mother of Per public employee
<b>6 MinoStruct_Prof</b>	Søren P father of Esther Architect	<b>Hoda</b> <b>mother of Walid</b> <b>Journalist</b>	Lene K mother of Camilla Student	Torben M father of Mai professor	Mette mother of Emma high school teacher	Helle G mother of Per public employee

### 3. Empirical Analysis

#### *Descriptive statistics*

In our empirical analysis, we investigate whether parental preferences for structured versus free-play daycares vary in a systematic way with the information in the testimonials that were randomized across respondents in the survey. In particular, we investigate whether stated preferences vary depending on whether the testimonials contain ethnic minority names. Table 3 shows the “raw” shares of parental preferences for structured and free-play daycares respectively.

On average, 77% preferred the free-play (B) option, while 23% preferred the structured daycare (A). When comparing responses across the seven groups (treatments), we find that the likelihood of preferring the structured daycare is lowest for parents who were subjected to the testimonials in treatment 3 – *MinoStruc\_NoProf* - and 6 – *MinoStruc\_Prof*.<sup>13</sup>

**Table 3: Percentage of parents choosing type A (structured) or type B (free-play) by treatment**

		A	B	
Treatment		Structured	Free-play	N
0	<i>NoNames</i>	26.7%	73.3%	311
1	<i>AllDanesNoProf</i>	24.5%	75.5%	319
2	<i>MinoFree_NoProf</i>	24.9%	75.1%	293
3	<i>MinoStruc_NoProf</i>	19.0%	81.0%	321
4	<i>AllDanes_Prof</i>	23.3%	76.7%	317
5	<i>MinoFree_Prof</i>	23.8%	76.2%	311
6	<i>MinoStruc_Prof</i>	18.2%	81.8%	307
Total		22.9%	77.1%	2,179

<sup>13</sup> Simple pairwise double-sided t-tests indicate that the shares of those preferring the structured (versus free-play) daycare are significantly different across the treatments. In particular, the probability of preferring the structured daycare for treatment 3 – *MinoStruc\_NoProf* - is statistically significantly different from treatment 1 – *AllDanes\_NoProf* – and treatment 2 – *MinoFree\_NoProf*. The p-values from t-tests are 0.09 and 0.08, respectively. Likewise, the probability of preferring a structured daycare in treatment 6 – *MinoStruc\_Prof* - is (marginally) significantly different from treatment 4 – *AllDanes\_Prof* - (p=0.12) and treatment 5 – *MinoFree\_Prof* - (p=0.09). However, adding professional information does not change the preferences significantly for daycares.

### Empirical model

To further investigate these findings, while controlling for possible non-random variation in socioeconomic characteristics across our randomized treatments (0-6), we next perform a regression analysis in two steps. We first estimate a model where all seven treatments are included individually. In order to directly measure the impact of including an ethnic minority name among testifiers on parental preferences for daycare, we model the probability of preferring structured daycare as a function of the seven treatments, controlling for household and district characteristics.

In our most general empirical model, the probability of preferring the *structured* daycare is given by:

$$p_i = \Pr[y_i = 1|X_i] = f(\alpha + \beta_1 AllDanes\_NoProf_i + \beta_2 MinoFree\_NoProf_i + \beta_3 MinoStruc\_NoProf_i + \beta_4 AllDanes\_Prof_i + \beta_5 MinoFree\_Prof_i + \beta_6 MinoStruc\_Prof_i + \gamma X_i) \quad (1)$$

where  $y_i = 1$  if the respondent (the parent) prefers structured daycare (and  $y_i = 0$  if the respondent prefers the free-play daycare).  $AllDanes\_NoProf_i$  to  $MinoStruc\_Prof_i$  are dummy variables that take on the value 1 if the survey respondent was given this particular testimonial and 0 otherwise.  $X_i$  contains individual controls (characteristics of the respondent household, i.e. the mother, the father and the child, and residential district characteristics of the responding household).<sup>14</sup> The category *NoNames* (treatment 0), i.e. the group that received no information on neither names nor profession behind the testimonials, is here considered the baseline.

In the second step of our empirical analysis, we continue examining the impact of being exposed to a testimonial containing an ethnic minority name for the choice of structured daycare, but we now overlook whether information was given on the profession. Implicitly, we thus assume

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<sup>14</sup> There are 15 districts in Copenhagen's daycare administration setting. These districts vary in terms of e.g. ethnic composition. We control for district level characteristics, including district fixed effects. Our district level characteristics include dummies for whether the district had a high (>10%) non-western population share (about 45% of the sample lived in districts with more than 10% non-Western inhabitants), whether a low share of district inhabitants are church members (around 12% of the sample), whether the district is on the government's official ghetto list (about 4% of the sample), and whether the district had a relatively high share of voters of populist right-wing party parties at last municipality elections (about 8% of the sample).

that the effects are equal across 1 and 4 (*AllDanes\_NoProf* and *AllDanes\_Prof*), across 2 and 5 (*MinoFree\_NoProf* and *MinoFree\_Prof*), and across 3 and 6 (*MinoStruc\_NoProf* and *MinoStruc\_Prof*). We thus combine the six treatments (1-6) in Table 3 into three main treatments, while the no-name treatment is the same:



Treatment		Description	Based on
Tr0	<i>NoNames</i>	No names	Treatment 0
Tr1	<i>AllDanes</i>	All Danish names	Treatment 1 + treatment 4
Tr2	<i>MinoFree</i>	Ethnic minority name in free-play	Treatment 2 + treatment 5
Tr3	<i>MinoStruc</i>	Ethnic minority name in structured	Treatment 3 + treatment 6

Our (constrained) empirical model in step 2 has the following form:

$$p_i = \Pr[y_i = 1|X_i] = f(\alpha + \beta_2 MinoFree_i + \beta_3 MinoStruc_i + \beta_0 NoNames_i + \gamma X_i) \quad (2)$$

where *AllDanes* (i.e. all Danish names in both structured and free-play) is now the base treatment. Our main parameters of interest,  $\beta_2$  and  $\beta_3$ , therefore directly show the effect of replacing a Danish name with an ethnic minority name in one of the testimonials for the free-play and the structured institution, respectively.

## Results

Equations (1) and (2) are estimated using a linear probability model (OLS).<sup>15</sup> Table 4 shows the estimation results for equation (1). Column 1 in Table 4 shows the results when including the six treatment dummies (*AllDanes\_NoProf*, *AllDanes\_Prof*, *MinoFree\_NoProf*, *MinoFree\_Prof*, *MinoStruc\_NoProf*, and *MinoStruc\_Prof*; note that treatment 0 – *NoNames* – is the base group), but no controls. Column 2 includes controls for household and residential district characteristics. Column 3 further includes district dummies. Compared to the baseline treatment (*NoNames*), we see that including names or names+profession reduces the likelihood of choosing the structured daycare in general. The differences are, however, only statistically significant for treatments *MinoStruc\_NoProf* and *MinoStruc\_Prof*, corresponding to the situation in which one of the testifiers of the structured daycare had an ethnic minority name.

<sup>15</sup> We also performed all estimations by logit, but the results are very similar to the OLS regressions. For the ease of interpreting the coefficients, especially when including interaction terms, we chose the OLS specification of the model. Results from the logit regressions are available upon request.

To analyze the treatment effects across the treatments further, we perform a number of F-tests which are reported in the second half of Table 4 after the main regression results (p-values for each F-test are shown in the table).

In Part I, we ask whether the demand for structured daycare is different if the testimonial contains an ethnic minority name in the free-play daycare rather than all Danish names, thus comparing treatments *MinoFree\_NoProf* to *AllDanes\_NoProf* and *MinoFree\_Prof* to *AllDanes\_Prof*. When comparing the parameter estimates of corresponding treatments, we find no statistically significant differences in choosing the structured daycare between *MinoFree\_NoProf* and *AllDanes\_NoProf* treatments, and the same applies to *MinoFree\_Prof* and *AllDanes\_Prof*. We thus do not find any discrimination against free-play daycares with testimonials containing ethnic minority names.

In part II of Table 4, we move on to analyze whether the demand for structured daycare is different if one of the testifiers' names for the structured daycare contains a non-Danish name. We thus compare treatment *MinoStruc\_NoProf* to *AllDanes\_NoProf*, finding a statistically significant difference (p-value less than 0.10) in the probability of choosing the structured daycare. This result indicates a negative effect on the choice of structured daycare when respondents observe an ethnic minority name in the testimonials for this same daycare. The probability of choosing the structured daycare is also lower for *MinoStruc\_Prof* than for *AllDanes\_Prof*, but the difference is not statistically significant (p=0.26). However, when we combine *MinoStruc\_NoProf* and *MinoStruc\_Prof* and test against the combined *AllDanes\_NoProf* and *AllDanes\_Prof*, we find that the probability of choosing the structured daycare is lower when an ethnic minority name is mentioned in the testimonial (p<0.04).

Next, we compare in Part III of Table 4 the effect on the demand for structured daycare of an ethnic minority name in the testimonial for the free-play versus the structured daycare (joint test of *MinoFree\_NoProf* to *MinoStruc\_NoProf* and *MinoFree\_Prof* to *MinoStruc\_Prof*). We find a statistically significant reduction in the preference for the structured daycare when an ethnic minority name is associated with the structured rather than the free-play daycare.

Finally, we analyze in Part IV of Table 4 whether information on testifiers' profession changes the discriminatory choices, as suggested by the tests in Part II and III. We thus compare treatments *AllDanes\_NoProf* to *AllDanes\_Prof*, *MinoFree\_NoProf* to *MinoFree\_Prof*, and *MinoStruc\_NoProf* to *MinoStruc\_Prof*, respectively. If the effects of ethnic minority names are

reduced by adding information on the profession of the testifier, this would suggest statistical (rather than taste-based) discrimination. However, these tests show statistically insignificant differences in the estimates. Our results, thus, do not provide evidence that the discrimination found is due to missing information on the skills of ethnic minority parents.

**Table 4: Regression results, main estimation, equation (1)**

	(1)	(2)	(3)
1 <i>AllDanes_NoProf</i>	-0.0224 (0.0335)	-0.0112 (0.0322)	-0.0122 (0.0323)
2 <i>MinoFree_NoProf</i>	-0.0177 (0.0342)	-0.0243 (0.0329)	-0.0224 (0.0330)
3 <i>MinoStruc_NoProf</i>	-0.0768** (0.0334)	-0.0683** (0.0322)	-0.0677** (0.0322)
4 <i>AllDanes_Prof</i>	-0.0334 (0.0335)	-0.0360 (0.0323)	-0.0394 (0.0323)
5 <i>MinoFree_Prof</i>	-0.0289 (0.0337)	-0.0317 (0.0325)	-0.0337 (0.0325)
6 <i>MinoStruc_Prof</i>	-0.0845** (0.0338)	-0.0791** (0.0326)	-0.0764** (0.0325)
Constant	0.267*** (0.0238)	0.319*** (0.0403)	0.293*** (0.0489)
Observations	2,179	2,179	2,179
R-squared	0.005	0.088	0.097
Controls	NO	YES	YES
District FE	NO	NO	YES
<b>F-tests across treatments (p-values)</b>			
<b>Part I: Ethnic minority in free-play</b>			
1 vs 2: <i>AllDanes_NoProf</i> vs <i>MinoFree_NoProf</i>	0.892	0.687	0.756
4 vs 5: <i>AllDanes_Prof</i> vs. <i>MinoFree_Prof</i>	0.893	0.894	0.859
1+4 vs 2+5: <i>AllDanes</i> vs. <i>MinoFree</i>	0.848	0.847	0.922
<b>Part II: Ethnic minority in structured</b>			
1 vs 3: <i>AllDanes_NoProf</i> vs. <i>MinoStruc_NoProf</i>	0.101	0.074	0.083
4 vs 6: <i>AllDanes_Prof</i> vs. <i>MinoStruc_Prof</i>	0.129	0.184	0.253
1+4 vs 3+6: <i>AllDanes</i> vs. <i>MinoStruc</i>	<b>0.026</b>	<b>0.028</b>	<b>0.042</b>
<b>Part III: Ethnic minority in free-play vs. structured</b>			
2 vs 3: <i>MinoFree_NoProf</i> vs. <i>MinoStruc_NoProf</i>	0.0815	0.179	0.166
5 vs 6: <i>MinoFree_Prof</i> vs. <i>MinoStruc_Prof</i>	0.100	0.146	0.190
2+5 vs 3+6: <i>MinoFree</i> vs. <i>MinoStruc</i>	<b>0.017</b>	<b>0.048</b>	<b>0.057</b>
<b>Part IV: Information about profession</b>			
1 vs 4 : <i>AllDanes_NoProf</i> vs. <i>AllDanes_Prof</i>	0.739	0.438	0.397
2 vs 5: <i>MinoFree_NoProf</i> vs. <i>MinoFree_Prof</i>	0.743	0.823	0.734
3 vs 6: <i>MinoStruc_NoProf</i> vs. <i>MinoStruc_Prof</i>	0.820	0.738	0.788

Note: Base group is *NoNames*. Controls included in columns 2-3 are dummies for single parent, child is boy, mother's highest education is primary school, mother has college education, low income family, mother works, child in poor health, child low birthweight, child has handicap, child is non-western, father responded to survey, and a number of residential district dummies for high non-western population share, low church member share, being on official ghetto list, district high share of populist right-wing party voters. Estimates shown in column 3 include residential district dummies. Standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Given that we reject (in part IV, Table 4) the hypothesis that information on testifiers' professions makes a difference to the results, we proceed by simplifying our empirical model as in Equation (2) where treatments are combined to three (four) main treatments. In Table 5, we show the results of our estimation of Equation (2). The group with all Danish names - Tr1, *AllDanes* - is now the base.

**Table 5: Regression results, main estimation, equation (2)**

	(1)	(2)	(3)
Tr2: <i>MinoFree</i>	0.00438 (0.0238)	-0.00455 (0.0230)	-0.00239 (0.0230)
	-0.0527**	-0.0500**	-0.0462**
Tr3: <i>MinoStruc</i>	(0.0236)	(0.0227)	(0.0228)
Tr0: <i>NoNames</i>	0.0279 (0.0290)	0.0236 (0.0280)	0.0258 (0.0280)
Constant	0.239*** (0.0166)	0.296*** (0.0365)	0.267*** (0.0458)
Observations	2,179	2,179	2,179
R-squared	0.005	0.088	0.096
Controls	NO	YES	YES
District FE	NO	NO	YES

Note: Base group is *AllDanes*. Controls included in columns 2-3 are dummies for single parent, child is boy, mother's highest education is primary school, mother has college education, low income family, mother works, child in poor health, child low birthweight, child has handicap, child is non-western, father responded to survey, and a number of district dummies for high non-western population share, low church member share, district being on official ghetto list, district high share of populist right-wing party voters. Estimations shown in column 3 include local district dummies. Standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Results for the estimation of Equation (2) confirm the findings obtained by estimating Equation (1). The effect of *MinoStruc* — i.e. of replacing one testifier's name for the structured daycare with a non-Danish name — reduces the demand for that daycare by almost 5 percentage points. This is, in

fact, quite a large reduction when compared to an overall demand for structured daycare of 23%. The result is robust to adding individual and district level controls. As before, the effect of *MinoFree* – i.e. the presence of an ethnic minority child in the testimonial for the free-play daycare – does not have any significant impact (neither statistically nor numerically) on the demand for one type of daycare over the other. In other words, when the ethnic minority is associated with free-play daycare, there is no discrimination.

### *Heterogeneity and Robustness*

One might worry that the results shown in Tables 4-5 on the variation in the demand for structured daycare across are mainly driven by minority parents. However, estimations on a sample of parents excluding minority families confirm the results shown above. In what follows, we explore how the effects found in Table 5 vary across different types of households. To this regard, Table A2 shows how parents' preferences for type of daycare differs according to background characteristics of the respondents measured at the individual and district level. The results in Table A2 show that households are, on one hand, *more* likely to prefer structured daycare if the mother has a low level of education, the child is of non-western background, the child is of poor health (self-reported), and the father responded to the survey (rather than the mother).<sup>16</sup> On the other hand, the household is *less* likely to prefer structured daycare if the child is a boy, the family is low-income, or the mother works. These results are confirmed by Table A3 that shows the results of an estimation on the probability of choosing structured daycare as a function of household and district characteristics.

As the probability of choosing structured (over free-play) daycare is positively related to certain child, family and district characteristics, we now investigate whether subgroups of our sample react differently to being exposed to ethnic minority names in the two types of daycares. The results are shown in Table A4 in the appendix, where each column shows the result of a regression where we interacted the treatment variables, *MinoFree*, *MinoStruc*, and *NoNames* with one background variable at a time. In panel A of the table, treatments are interacted with characteristics of the child and the mother, and in panel B, treatments are interacted with a dummy for whether the father responded (by choice) to the survey, household income and four variables that characterize the district in which the family lives. Surprisingly perhaps, we do not find that respondents of non-

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<sup>16</sup> Responding households could choose themselves whether the father or the mother would respond to the survey. Households where the father responded are more likely to be of non-western origin.

Western background react differently to being exposed to an ethnic minority name in any of the daycares, thus confirming the findings from the main regression.

One may speculate that minority parents who are particularly interested in encouraging and developing their children's language skills (Danish) and school readiness will be more likely to live in neighborhoods with a lower share of ethnic minorities. We therefore tested whether ethnic minority parents responded differently depending on whether they live in a district with a high proportion of ethnic minorities or whether they live in a district with a relatively low proportion of ethnic minorities. The results are shown in the appendix in Table A5 where we interact the treatments not only with a dummy for the child being of non-Western background but also with dummies for living in a district with characteristics associated with ethnic composition.

Interestingly, we find in column (1) of Table A5 that *MinoStruc\*ChildNonWest* is negative and significant, while *MinoStruc\*ChildNonWest\*X* (where *X* is a dummy for the district having a high share of non-Westerners) is positive and significant. The two effects are numerically of equal size. Thus, the negative impact of *MinoStruc* is mainly driven by non-Western families living in a district that is *not* characterized by many non-Westerners, while minority parents living in minority districts do not react negatively to a minority child in structured daycare. This suggests that ethnic minority parents who have chosen *not* to live in a neighborhood with a high share of minorities are aiming at having their children integrated into a daycare with more ethnic Danes. Moreover, we find in column (2) of Table A5 a negative and significant effect of *MinoFree\*ChildNonWest* and a positive and significant of *MinoFree\*ChildNonWest\*X* (where *X* is a dummy for the district having a low share of protestant church members - another sign of an ethnic minority district). This finding suggests that minority parents living in an ethnic minority district select away from the free-play and towards the structured daycare if the testimonial of the free-play contains a minority child, while ethnic minority parents living in non-minority districts will reduce their demand for the structured (thus moving towards the free-play) if they observe an ethnic minority child in the free-play. This finding suggests that ethnic minority parents living in non-minority neighborhoods will be more inclined to choose a free-play daycare if they see (other) minority children in that daycare.

#### **4. Willingness to travel (WTT) to favored choice**

In order to further elicit the strength of the preferences for the two types of daycares, structured (A) and free-play (B), we study how parental choices change when they have to pay a price, in terms of

travelling distance, to keep their preferred type of daycare. We asked parents to elaborate on their choice of A and B, respectively, by responding to the following question:

*“If A-type (B-type) daycare is your preferred institution, imagine it being further away than the other type, B (A), how farther would you be willing to travel accept to be in go to your preferred institution?”*

We observe the demand of structured and free-play daycare in several distance intervals: 0-200m, 200-400m, 400-800m, 800m-1.6km, 1.6-3.2km, “Would not consider other than preferred” or “Do not know or no answer”. We interpret the responses given in the category “Would not consider other than preferred” as evidence of a high willingness to travel (above 3.2 km). Table 6 shows responses; columns 1-2 are responses for those who prefer the structured daycare, and columns 3-4 for those who prefer the free-play daycare. On average, we observe that parents who prefer free-play daycare are willing to travel for a longer distance in order to keep their child in the preferred daycare compared to parents who prefer structured daycare. The median WTT is 800-1600 meters for both groups, and the weighted average WTT is 1,600-2,200 meters (depending on how values are chosen for each distance interval, i.e. if we use mid-point or top-point of each interval). The unconditioned differences in WTT across the two groups, A and B, are small.



**Table 6: Willingness-to-travel (WTT) for preferred daycare for the two daycare types.**

	A - Structured – is preferred		B - Free-play – is preferred	
	Number	Percent	Number	Percent
0-200m	45	9.2	61	3.7
200-400m	71	14.5	188	11.3
400-800m	115	23.5	464	27.9
800m-1.6km	117	23.9	473	28.4
1.6-3.2km	35	7.1	140	8.4
More than 3.2km*	96	19.6	324	19.5
Do not know or no answer	11	0.4	14	0.8
Total number of respondents to question	490	100	1,664	100
Weighted average of distances				
Top distance in interval**	2,177		2,265	
Midpoint distance in interval***	1,628		1,697	

Notes: \*) Response was “Would not consider other than preferred”, \*\*) Average based on top distance in each distance interval, \*\*\*) Average based on midpoint in each distance interval.

Travelling to a daycare located far away from home is costly to parents. Our design estimates how high a value parents assign to their preferred choice, and how the value varies across treatments, i.e. across daycares with or without ethnic minorities. In the terminology of (Becker, 1971), and, more recently (Charles & Guryan, 2008) (Hedegaard & Tyran, 2018), the travel distance across our randomized treatments may provide a measure of the “price of prejudice” in the form of the opportunity cost of choosing a daycare that requires more daily transportation due to ethnic composition considerations. Figure A1 and A2 in the appendix show WTT for parents who prefer structured daycare and free-play daycare under each treatment (except treatment 0: *NoNames*), respectively.

We now move on to estimate the differences in WTT in a framework where we can control for differences in background characteristics of the parents. We model the (natural log of) willingness

to travel distance,  $WTT$ , as a function of our randomized treatments and a number of controls, including a control for whether the respondent initially preferred structured or free-play daycare.

$$\begin{aligned}
WTT_i = & \beta_1 Freeplay + \beta_2 Structured_i + \beta_3 MinoFree_i + \beta_4 MinoStruc_i + \beta_5 NoNames_i \\
& + \beta_6 Freeplay * MinoFree_i + \beta_7 Freeplay * MinoStruc_i + \beta_8 Freeplay * NoNames_i \\
& + \beta_9 Structured * MinoFree_i + \beta_{10} Structured * MinoStruc_i + \beta_{11} Structured * NoNames_i \\
& + \gamma X_i + e_i
\end{aligned} \tag{3}$$

We estimate the model by OLS. As respondents were asked to choose between distances in a number of distance intervals, we chose the top distance in each interval as the WTT if the respondent had marked that interval. For the top interval without an upper limit, we chose to limit WTT to 6,400 meters, using as dependent variable the natural log for WTT in the estimation.<sup>17</sup> Table 7 below shows the estimates from this regression. The base is the *AllDanes* category.

**Table 7: Estimation of (natural log of) willingness-to-travel (WTT) for preferred daycare, equation (3)**

	(1)	(2)	(3)	(4)	(5)
<i>Free-play</i>	<b>7.280***</b> (0.0243)	<b>7.264***</b> (0.0414)	<b>7.301***</b> (0.0452)	<b>7.301***</b> (0.0452)	<b>7.157***</b> (0.0912)
<i>Structured</i>	<b>7.138***</b> (0.0451)	<b>7.126***</b> (0.0558)	<b>7.005***</b> (0.0817)	<b>7.005***</b> (0.0817)	<b>6.867***</b> (0.113)
<i>MinoFree</i>		-0.00733 (0.0567)			
<i>MinoStruc</i>		0.0564 (0.0563)			
<i>NoNames</i>		0.00534 (0.0693)			
<i>Free-play*MinoFree</i>			-0.0737 (0.0649)	-0.0737 (0.0649)	-0.0704 (0.0650)

<sup>17</sup> The model was also estimated using ordered logit using the intervals in order of distance.

<i>Free-play*MinoStruc</i>			0.0352 (0.0632)	0.0352 (0.0632)	0.0386 (0.0634)
<i>Free-play*NoNames</i>			-0.0860 (0.0799)	-0.0860 (0.0799)	-0.0884 (0.0800)
<i>Structured*MinoFree</i>			<b>0.205*</b> (0.116)	<b>0.205*</b> (0.116)	<b>0.199*</b> (0.116)
<i>Structured*MinoStruc</i>			0.106 (0.124)	0.106 (0.124)	0.0955 (0.124)
<i>Structured*NoNames</i>			<b>0.284**</b>	<b>0.284**</b>	<b>0.294**</b>
Observations	2,143	2,143	2,143	2,143	2,143
R-squared	0.982	0.982	0.982	0.982	0.982
Controls	NO	NO	NO	YES	YES
District FE	NO	NO	NO	NO	YES

Note: Estimated by OLS. Base is the *AllDanes* category. Controls included in columns 4-5 are dummies for single parent, child is boy, mother's highest education is primary school, mother has college education, low income family, mother works, child in poor health, child low birthweight, child has handicap, child is non-western, father responded to survey, and a number of district dummies for high non-western population share, low church member share, district being on official ghetto list, district high share of populist right-wing party voters. Estimations shown in column 5 include local district dummies. Standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

In general, WTT to the preferred daycare is higher if one initially chose the free-play rather than the structured daycare.<sup>18</sup> This result also holds when including the full set of controls in columns 4-5. Effect sizes suggest that the WTT for the preferred choice is 22% higher if the respondent had initially chosen free-play rather than structured daycare in the estimation with full set of controls (column 5).

Introducing in column 2 the randomized treatments, *MinoFree*, *MinoStruc* and *NoNames*, has no significant effect on WTT. However, when interacting the treatments with the dummies for *Free-play* and *Structured* in column 3, we observe a positive and (marginally) significant effect of *Structured\*MinoFree*. This suggests that parents who initially preferred structured daycare have a higher willingness to travel to their favored (structured) daycare rather than accepting a closer free-play daycare when there is a minority child in the testimonial for the free-play daycare (compared to only Danish names in the testimonials). The WTT for these parents is around 20% higher than for

<sup>18</sup> Comparing the parameter estimates for *Free-play* and *Structured*, and taking inverse logs of both, we see that parents who prefer free-play daycare are willing to travel 200-400 meters longer to their favored daycare than parents who prefer structured daycare when we include controls for background characteristics and treatments.

other parents. There are, however, no significant effects in WTT across treatment for parents who initially preferred free-play daycare.

## **5. Survey responses' reliability and compliance with real-world choices**

Our main question of interest on parental preferences for structured versus free-play daycare is of a somewhat hypothetical character. As concern is sometimes raised about how reliable survey responses are in general when it comes to eliciting preferences and responding to hypothetical questions where stated answers have no real consequences, we investigated how well individual responses are aligned with respondents' real-world choices and with socio-economic characteristics found in the register data.

First, we analyzed how reliable the survey responses generally are compared to real-world daycare choices by comparing the two daycares that respondents in the survey claim that they have signed up for to the two daycares that they actually signed up for according to the administrative register data from the Copenhagen municipality. This comparison shows that in as much as 97% of the cases, survey respondents' report to have chosen the *same* daycare as the one that they actually ended up signing up for. This suggests that the survey responses daycare chosen are almost perfectly in line with actual choices.

Secondly, those who prefer the structured daycare differ systematically from those who chose free-play on a number of socio-economic characteristics, as shown in Table A2 and A3. Thus those who prefer structured daycare are generally more likely to be of non-Western background, the mother has less education and is less likely to be employed.

Thirdly, the survey asks which characteristics of a daycare institution that parents find important when choosing a daycare to sign their child up for. In Table A6, we show how the weight that parents put on different characteristics of daycares correlate with whether they prefer structured or free-play daycare. We find that parents who prefer the structured type of daycare are placing significantly (p-values in column 3) more weight on opening hours (18% vs. 11%) and on pedagogical profile (24% vs. 20%), while they put significantly less weight on outdoor facilities and environment (29% vs. 37%) and on number of children (14% vs. 22%). As outdoor activities and time for the individual child are qualities that were mentioned in the testimonials for the free-play daycare, parents' responses seem to be consistent across different parts of the survey. Moreover, Table A6 shows that

it is less likely that parents who prefer the structured daycare have paid a visit to the daycare before making their prioritization of daycares (43% name “good impression at visit” as an important factor when choosing daycare as opposed to 54% among those who preferred free-play), suggesting perhaps that parents who choose the structured daycare spend less time searching for a daycare. This is also consistent with lower WTT for structured daycare in general.

Fourthly, we use actual assignments to daycares according to administrative registers to investigate to what extent the variation in preferences for structured and free-play daycare across the seven treatments complies with the share of minority children in the daycares that the children were later assigned to. We hypothesize that parents who choose structured daycare *despite* knowing that there are ethnic minority children in that daycare (i.e. choosing structured daycare despite being exposed to *MinoStruc* in treatment 3 or 6), will on average be *less* discriminatory. This is exactly what Table A7 shows – parents who were randomized into treatment 3 and 6 and still prefer structured daycare, ended up in a daycare with a higher proportion of ethnic minority children.

## **6. Discussion and conclusion**

A parent’s choice of a daycare is shaped not only by a daycare’s location, resources and pedagogical profile but also by the anticipated participation of other parents and their children. We developed and conducted a simple randomized online survey to study the interaction of such factors on parental daycare choices. The randomized survey employed six personal vignettes from six parents to vary the expected characteristics of the two hypothetical daycares under consideration. Our estimation results show that the majority of parents (75%) in Copenhagen prefer a ‘free play’ over a ‘structured’ daycare. Furthermore, we found that the parental preference for the free play daycare is unchanged when one of the testimonials for the free play daycare is assigned an ethnic minority name. However, we found that the parental preference for the structured daycare is lower when a testimonial for structured daycare is given an ethnic minority name.

Our survey design included additional controls as a means to isolate the possible mechanisms behind our results. We considered an additional treatment by which we varied the background information of each parent. In this treatment we assigned all fictive parents a typical middleclass occupation such as high school teacher or journalist. This treatment was meant to isolate statistical discrimination factors that occur when parents make implicit judgements about the minority

parents' backgrounds. We found that the addition of this control did not change our results. We cautiously suggest that this is evidence that the discrimination is taste-based rather than statistical.

We furthermore explored whether some socioeconomic groups are more likely to show discriminatory behavior than others. While the treatment effect itself is still robust in the interacted regressions, we do not find statistically significant results on the interaction terms. This result could, however, be due to either a lack of statistical power or our variables failing to capture family preferences. Although we cannot rule out either type of discrimination with absolute certainty, we nevertheless show that discrimination against ethnically diverse daycares exists among a particular group of parents who favored the structured type of learning environment.

Our survey also asked each parent a willingness to travel (strength of preference) question, which asked the parents to report the additional travel distance needed to make the parent overturn their original choice. Interestingly, we found that parents who choose structured daycares are willing to travel a longer distance to attend their preferred institution if the alternative free play daycare contained a minority parent name than when it contained all Danish names. We interpret this result to suggest that the typical parents who prefer structured daycares do not believe that all free play daycares are equivalent regardless of ethnicity of the parents, which is different from what we observe for the typical parents who prefer free play daycares.

Our study of parental choices over hypothetical daycares is exploratory and is limited by sample size and thus the number of exogenous controls. However, our results indicate that the sorting of some parental types across daycares may be influenced by relatively small changes in the anticipated peer composition of daycares. The potential for sorting is found in our result that parents preferring a structured daycare are willing to avoid their preferred daycare pedagogy if this daycare has an ethnic minority, and that they are more willing to travel to their preferred daycare pedagogy if the alternative free play daycare is associated with an ethnic minority name. However, we also found that there is a relatively large group of parents who prefer the free play daycare and whose preference is unaffected by the presence of a minority parent and child.

If the sorting mechanism is true, we can expect in the Copenhagen daycare assignment that a fraction of the population will select out of structured daycares if there are present ethnic minorities. Therefore, the parents choosing those structured daycares with ethnic minority children present will be expected to be less discriminatory towards ethnic minorities. Looking at the actual daycare choices of the parents in our sample, we found that the parents who were randomized into treatment

3 and 6 (both treatments with ethnic minority children in the structured daycare) and who still preferred the structured daycare, ended up in a daycare with a higher proportion of ethnic minority children. This result gives us some confidence in the external validity of the survey responses.

## References

- Abdulkaridoglu, A., Pathak, P. A., Schellenberg, J., & Walters, C. R. (2017). Do parents value school effectiveness? *NBER Working Papers*.
- Acharya, A., Blackwell, M., & Sen, M. (2016). The political legacy of American slavery. *The Journal of Politics*, 78(3), 621-641.
- Alesina, A., Carlana, M., La Ferrara, E., & Pinotti, P. (2018). Revealing Stereotypes: Evidence from Immigrants in Schools. *IZA Discussion Papers*, 11981.
- Algan, Y., Dustmann, C., Glitz, A., & Manning, A. (2010). The Economic Situation of First and Second-Generation Immigrants in France, Germany and the United Kingdom. *Economic Journal*, 120(542), 4-30.
- Allport, G. W., Clark, K., & Pettigrew, T. (1954). The nature of prejudice.
- Almond, D., & Currie, J. (2011). *Human Capital Development before Age Five* (Årg. 4B). (D. Card, & O. Ashenfelter, Red.) Elsevier.
- Arrow, K. J. (1973). The Theory of Discrimination. *Discrimination in Labor Markets*, 3(10), 3-33.
- Arrow, K. J. (1998). What Has Economics to Say About Racial Discrimination? *Journal of Economic Perspectives*, 12(2), 91-100.
- Bauchmüller, R., Gørtz, M., & Rasmussen, A. W. (2014). Long-run benefits from universal high-quality preschooling. *Early Childhood Research Quarterly*, 29, s. 457-470.
- Bayer, P., & Charles, K. K. (2016). Divergent paths: Structural change, economic rank, and the evolution of black-white earnings differences, 1940-2014. *NBER Working Paper Series*, 22797.
- Beaman, L., Chattopadhyay, R., Duflo, E., Pande, R., & Topalova, P. (2009). Powerful women: does exposure reduce bias? *The Quarterly journal of economics*, 124(4), 1497-1540.
- Becker, G. S. (1971). *The Economics of Discrimination*. Chicago.
- Behaghel, L., Crépon, B., & Le Barbanchon, T. (2015). Unintended effects of anonymous resumes. *American Economic Journal: Applied Economics*, 7(3), 1-27.



- Berggren, N., & Nilsson, T. (May 2013). Does Economic Freedom Foster Tolerance? *Kyklos*, 66(2), s. 177-207.
- Bertrand, M., & Duflo, E. (2016). Field Experiments on Discrimination. *Handbook of Field Experiments*.
- Bertrand, M., & Mullainathan, S. (2004). Are Emily and Greg More Employable than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination. *American Economic Review*, 94(4).
- Bisin, A., & Verdier, T. (2001). The economics of cultural transmission and the dynamics of preferences. *Journal of Economic theory*, 97(2), 298-319.
- Black, S. (1999). Do better schools matter? Parental valuation of elementary education. *Quarterly Journal of Economics*, 114, s. 577-599.
- Boisjoly, J., Duncan, G. J., Kremer, M., Levy, D. M., & Eccles, J. (2006). Empathy or antipathy? The impact of diversity. *American Economic Review*, 96(5), 1890-1905.
- Cameron, A. C., & Miller, D. L. (2015). A Practitioner's Guide to Cluster-Robust Inference. *Journal of Human Resources*, 50(2), s. 317-372.
- Card, D., & Rothstein, J. (2007). Racial segregation and the black-white test score gap. *Journal of Public Economics*, 91, s. 2158-2184.
- Carell, S. E., Hoekstra, M., & West, J. E. (forthcoming). The Impact of College Diversity on Behavior Toward Minorities. *American Economic Journal: Economic Policy*.
- Carlsson, M., & Rooth, D. O. (2007). Evidence of ethnic discrimination in the Swedish labor market using experimental data. *Labour Economics*, 14(4), 716-729.
- Charles, K., & Guryan, J. (2008). Prejudice and Wages: An Empirical Assessment of Becker's The Economics of Discrimination. *Journal of Political Economy*, 116(5), s. 773-809.
- Clingingsmith, D., Khwaja, A. I., & Kremer, M. (2009). Estimating the impact of the Hajj: religion and tolerance in Islam's global gathering. *The Quarterly Journal of Economics*, 124(3), 1133-1170.
- Cunha, F., & Heckman, J. (2007). The technology of skill formation. *American Economic Review Papers & Proceedings*, 97(2), 31-45.
- Currie, J., & Moretti, E. (2003). Mother's Education and the Intergenerational Transmission of Human Capital: Evidence from College Openings. *Quarterly Journal of Economics*.
- Datta Gupta, N., & Simonsen, M. (2010). Non-cognitive child outcomes and universal high quality child care. *Journal of Public Economics*, 94, s. 30-43.

- Dobbie, W., & Fryer Jr, R. G. (2015). The medium-term impacts of high-achieving charter schools. *Journal of Political Economy*, 123(5), 985-1037.
- Dustmann, C., Machin, S., & Schönberg, U. (2010). Ethnicity and educational attainment in compulsory schooling. *Economic Journal*, 120, 272-297.
- Eckel, C., & Ragan, P. (2011). Face Value. *American Economic Review*, 101(4), 1497-1513.
- Edelman, B., Luca, M., & Svirsky, D. (2017). Racial discrimination in the sharing economy: Evidence from a field experiment. *American Economic Journal: Applied Economics*, 9(2), 1-22.
- Eppl, D., & Romano, R. (1998). Competition between private and public schools, vouchers, and peer-group effects. *American Economic Review*, 62, s. 33-62.
- Eppl, D., & Romano, R. E. (2011). Peer Effects in Education: A Survey of the Theory and Evidence. (A. B. Jess Benhabib, Ed.) *Handbook of Social Economics*, 1B.
- Esping-Andersen, G., Garfinkel, I., Han, W.-J., Magnuson, K., Wagner, S., & Waldfogel, J. (2012). Child care and school performance in Denmark and the United States. *Children and Youth Services Review*, 34(3), s. 576-589.
- Fryer, R. G. (2011a). Racial Inequality in the 21st Century: The Declining Significance of Discrimination. (O. Ashenfelter, & D. Card, Red.) *Handbook of Labor Economics*, 4B.
- Fryer, R. G. (2011b). The Importance of Segregation, Discrimination, Peer Dynamics, and Identity in Explaining Trends in the Racial Achievement Gap. (A. B. Jess Benhabib, Red.) *Handbook of Social Economics*, 1B.
- Gneezy, U., List, J., & Price, M. K. (2012). Toward an understanding of why people discriminate: Evidence from a series of natural field experiments. *National Bureau of Economic Research*, No. w17855.
- Gneezy, U., List, J., & Price, M. K. (2012, February). Towards an understanding of why people discriminate: Evidence from a series of natural field Experiments. *NBER Working Paper Series*, 17855.
- Guryan, J., & Charles, K. K. (2013). Taste-Based or Statistical Discrimination: The Economics of discrimination Returns to its Roots. *The Economic Journal*, 123(572), 417-432.
- Gørtz, M. (2012). Early Retirement in the Day-Care Sector: The Role of Working Conditions and Health. *European Journal of Ageing*, 9(3), 187-198.
- Gørtz, M., & Andersson, E. (2013). Child-To-Teacher Ratio And Day Care Teacher Sickness Absenteeism. *Health economics*, 23(12), 1430-1442.

- Gørtz, M., Johansen, E. R., & Simonsen, M. (2018). Academic Redshirting, Achievement and the Gender Composition of Preschool Teachers. *Labour Economics*, 55, 241-258.
- Hanushek, E. A., Kain, J. F., Markman, J. M., & Rivkin, S. G. (2003). Does peer ability affect student achievement? *Journal of Applied Econometrics*, 18(5), 527-544.
- Hanushek, E., & Rivkin, S. (2003). Does Public School Competititon Affect Teacher Quality? I C. Hoxby, *The Economics of School Choice*. National Bureau of Economic Research (NBER).
- Heckman, J. J. (1998). Detecting Discrimination. *Journal of Economic Perspectives*, 101-116.
- Hedegaard, M., & Tyran, J.-R. (2018). The Price of Prejudice. *American Economic Journal: Applied Economics*, 10(1), s. 40-63.
- Henry, G. T., & Rickman, D. K. (2007). Do peers influence children's skill development in preschool? *Economics of Education Review*, 26(1), 100-112.
- Hoxby, C. (2000). Peer Effects in the Classroom: Learning from Gender and Race Variation. *NBER Working Paper Series*, 7867.
- Jensen, P., & Rasmussen, A. (2011). The Effect of Immigrant Concentration in Schools on Native and Immigrant Children's Reading and Math Skills. *Economics of Education Review*, 30, 1503-1515.
- Justice, L. M., Petscher, Y., Statschneider, C., & Mashburn, A. (2011). Peer Effects in Preschool Classrooms: Is Children's Language Growth Associated With Their Classmates' Skills? *Child Development*, 82(6), 1768-1777.
- Karsten, S., Ledoux, G., Roeleveld, J., Felix, C., & Elshof, D. (2003). Schook Choice and Ethnic Segregation. *Educational Policy*, 17(4), 452-477.
- Kennes J., Monte, D. & Tumennasan, N. (2014). The Day Care Assignment: A Dynamic Matching Problem. *American Economic Journal: Microeconomics*, 6, issue 4, p. 362-406.
- Kristen, C. (2008). Primary School Choice and Ethnic School Segregation in German Elementary Schools. *European Sociological Review*, 24(4), 495-510.
- Kaas, L., & Manger, C. (2012). Ethnic discrimination in Germany's labour market: a field experiment. *German economic review*, 13(1), 1-20.
- Levitt, S. (2005). Testing Theories Of Discrimination: Evidence From Weakest Link. *Journal of Law and Economics*, 47(2), 431-452.

- List, J. A. (2004). The nature and extent of discrimination in the marketplace: Evidence from the field. *The Quarterly Journal of Economics*, 119(1), 49-89.
- MacLeod, W., & Urquiola, M. (2015). Reputation and school competition. *American Economic Review*, 105(11), s. 3471-3488.
- Mashburn, A. J., Justice, Laura M., Downer, Jason T., & Pianta, Robert C. (2009). Peer Effects on Children's Language Achievement During Pre-Kindergarten. *Child Development*, 80(3), 1467-8624.
- Michaud, P.-C., van Soest, A., & Bissonnette, L. (2018). Understanding joint retirement. *NBER Working Papers*(25030).
- OECD. (2018). *Engaging Young Children: Lessons from Research about Quality in Early Childhood Education*. Paris: OECD. doi:<https://doi.org/10.1787/9789264085145-en>.
- Pettigrew, T. F., & Tropp, L. R. (2006). A meta-analytic test of intergroup contact theory. *Journal of personality and social psychology*, 90(5), 751.
- Phelps, E. S. (1972). The Statistical Theory of Racism and Sexism. *American Economic Review*, 659-661.
- Rangvid, B. S. (2007). Sources of Immigrants' Underachievement: Results from PISA-Copenhagen. *Education Economics*, 15(3), 293-326.
- Rangvid, B. S. (2010). School Choice, Universal Vouchers and Native Flight from Local Schools. *European Sociological Review*, 26(3), 319-335.
- Rothstein, J. (2006). Good Principals or Good Peers? Parental Valuation of School Characteristics, Tiebout Equilibrium, and the Incentive Effects of Competition among Jurisdictions. *American Economic Review*, 96(4), s. 1333-1350.
- Sacerdote, B. (2011). Peer Effects in Education: How Might They Work, How Big Are They and How Much Do We Know Thus Far? (S. M. Eric A Hanushek, Red.) *Handbook of the Economics of Education*, 3.
- Söderström, M., & Uusitalo, R. (2010). School Choice and Segregation: Evidence from an Admission Reform. *Scandinavian Journal of Economics*, 112(1), 55-76.
- Van Laar, C., Levin, S., Sinclair, S., & Sidanius, J. (2005). The effect of university roommate contact on ethnic attitudes and behavior. *Journal of Experimental Social Psychology*, 41(4), 329-345.
- Voigtländer, N., & Voth, H. J. (2012). Persecution perpetuated: the medieval origins of anti-Semitic violence in Nazi Germany. *The Quarterly Journal of Economics*, 127(3), 1339-1392.

- Wagner, J., Camparo, L., Tsenkova, V., & Camparo, J. (2008). Do anti-immigrant sentiments track into Danish classrooms? Ethnicity, ethnicity salience, and bias in children's peer preferences. *International Journal of Educational Research*, 47, 313-322.
- Weichselbaumer, D. (2016). Discrimination against female migrants wearing headscarves.
- Weiland, C., & Yoshikawa, H. (2014). Does higher peer socio-economic status predict children's language and executive function skills gains in prekindergarten? *Journal of Applied Developmental Psychology*, 35(5), 422-432.
- Yinger, J. (1998). Evidence on discrimination in consumer markets. *Journal of Economic perspectives*, 12(2), 23-40.

**Appendix. Supplementary tables and figures**

**Table A1: Comparison estimation sample, sample with responses to survey and entire sample**

	Estimation sample	Survey response	Total sample
<b># of observations</b>	2165	2494	4885
<b>Employment</b>			
<b>Mother's employment</b>			
Employed	80.8	77.7	72.3
Student	6.7	6.3	7.1
Not employed	6.8	7.0	11.0
Unknown empl. status	5.7	9.1	9.5
<b>Father's employment</b>			
Employed	81.9	80.9	76.1
Student	3.5	3.5	4.4
Not employed	5.2	6.2	8.9
Unknown empl. status	9.3	9.4	10.7
<b>Education</b>			
<b>Mother's education</b>			
No education beyond primary school or unknown	4.0	4.7	8.8
High school, vocational or short further education	20.8	20.5	23.5
College (bachelor level)	29.2	27.7	26.0
Master level	38.2	35.9	29.2
Unknown education	7.8	11.4	12.5
<b>Father's education</b>			
No education beyond primary school or unknown	5.5	5.9	9.9
High school, vocational or short further education	26.3	26.6	28.3
College (bachelor level)	20.5	19.7	17.9
Master level	34.0	33.1	27.7
Unknown education	13.7	14.6	16.3
<b>Family type</b>			
Nuclear family	90.7	90.7	86.8
With mother and partner	2.0	2.0	2.5
With single mother	6.9	7.0	10.1
With father and partner	0.0	0.0	0.0
With single father	0.3	0.4	0.5
<b>Ethnic background</b>			
Ethnic Dane	89.0	86.8	84.0
Ethnic minority	11.0	13.2	16.0

\*) Samples includes only observations that could be linked to register data.

**Table A2: Characteristics of respondents preferring free-play and structured daycares**

Characteristics	Free-Play		Structured		Differences	
	Mean	SD	Mean	SD	t-value	p-value
Mother's age	31.68	4.34	31.51	4.72	0.74	0.46
Father's age	33.61	5.47	34.26	5.84	-2.23	0.03
Ethnic minority respondent dummy	0.07	0.25	0.25	0.44	-12.14	0.00
Child is boy dummy	0.51	0.5	0.46	0.5	1.92	0.05
Mother's education dummy (highest education is primary school or unknown dummy)	0.09	0.28	0.23	0.42	-8.87	0.00
Mother's education dummy (college or beyond)	0.71	0.45	0.56	0.5	6.49	0.00
Family disposable income (1000 DKK)	462	242	450	221	0.91	0.36
Family disposable income, first quartile dummy	0.23	0.42	0.25	0.43	-0.88	0.38
Family disposable income, second quartile dummy	0.24	0.43	0.25	0.44	-0.54	0.59
Family disposable income, third quartile dummy	0.25	0.43	0.24	0.43	0.61	0.54
Family disposable income, fourth quartile dummy	0.26	0.44	0.24	0.42	1.1	0.27
Child has handicap dummy	0.02	0.13	0.02	0.13	0.36	0.72
Mother is employed dummy	0.83	0.38	0.74	0.44	4.59	0.00
Birthweight is low	0.01	0.12	0.02	0.15	-1.21	0.23
Father responded to the survey dummy	0.23	0.42	0.32	0.47	-3.77	0
Child in poor health dummy	0.01	0.11	0.04	0.19	-3.88	0
Mother earns more dummy	0.21	0.4	0.21	0.41	-0.14	0.88
Father earns more dummy	0.55	0.5	0.6	0.49	-1.89	0.06
Mother and father earn the same amount dummy	0.24	0.43	0.19	0.39	2.37	0.02
Percentage of housework done by mother	58.66	13.82	59.79	15.86	-1.46	0.15
Percentage of housework done by father	41.42	13.78	39.72	15.34	2.21	0.03
Percentage of childcare done by mother	61.84	14.74	62.48	16.6	-0.75	0.44
Percentage of childcare done by father	38.56	14.8	37.21	16.15	1.63	0.10
Single parent dummy	0.06	0.24	0.08	0.27	-1.44	0.15
District with low shares of church members dummy	0.11	0.32	0.15	0.36	-2.39	0.02
District with high shares of non-western population dummy	0.45	0.5	0.45	0.5	-0.11	0.92
District on official ghetto list dummy	0.03	0.17	0.07	0.25	-3.73	0.00
District with high shares of populist right-wing party voters	0.08	0.27	0.08	0.27	-0.24	0.80
Child is non-western dummy	0.1	0.3	0.28	0.45	-10.57	0.00

Note: The differences in characteristics between structured and free-play are tested using double-sided t-tests.



**Table A3. Probability of preferring structured daycare**

	(1)	(2)
Single parent	0.0709* (0.0366)	0.0711* (0.0366)
Child is boy	-0.0279 (0.0173)	-0.0273 (0.0174)
Mother no education beyond primary school	0.134*** (0.0334)	0.135*** (0.0334)
Mother college education	-0.0330 (0.0223)	-0.0248 (0.0224)
Low income family	-0.137*** (0.0272)	-0.136*** (0.0273)
Mother works	-0.0605** (0.0264)	-0.0626** (0.0264)
Child in poor health	0.251*** (0.0656)	0.243*** (0.0658)
Child low birthweight	0.0317 (0.0697)	0.0388 (0.0698)
Child has handicap	-0.0441 (0.0654)	-0.0499 (0.0654)
Child is non-western	0.205*** (0.0286)	0.204*** (0.0286)
Father responded to survey	0.0500** (0.0203)	0.0511** (0.0203)
District high non-western pop share	-0.0241 (0.0187)	-0.0234 (0.0474)
District low church member share	0.0290 (0.0314)	0.0610* (0.0361)
District on official ghetto list	0.0203 (0.0539)	-0.0182 (0.0598)
District high share of populist right-wing voters	-0.0281 (0.0340)	-0.0513 (0.0368)
Constant	0.280*** (0.0340)	0.254*** (0.0438)
Observations	2,179	2,179
R-squared	0.084	0.093
Controls	YES	YES
District FE	NO	YES

Note: Standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Table A4: Treatment Effects interacted with selected background characteristics.**

Panel A	Treatment interacted with $X$ :					
	Interaction with mother's characteristics			Interaction with child characteristics		
	(1)	(2)	(3)	(4)	(5)	(6)
	$X$ : Mother has college	$X$ : Mother no education beyond primary school	$X$ : Mother is working	$X$ : Child is boy	$X$ : Child has low birthweight	$X$ : Child of non-Western background
<i>MinoFree</i>	0.0462 (0.0402)	-0.00910 (0.0246)	0.00454 (0.0522)	-0.0162 (0.0328)	-0.00387 (0.0232)	0.0114 (0.0250)
<i>MinoStruc</i>	-0.0380 (0.0397)	-0.0427* (0.0242)	-0.115** (0.0510)	-0.0475 (0.0322)	-0.0442* (0.0230)	-0.0371 (0.0245)
<i>NoNames</i>	0.102** (0.0498)	0.0130 (0.0297)	0.0806 (0.0662)	-0.0179 (0.0387)	0.0276 (0.0281)	0.0377 (0.0304)
<i>MinoFree*X</i>	-0.0723 (0.0491)	0.0528 (0.0692)	-0.00820 (0.0581)	0.0272 (0.0460)	0.0635 (0.197)	-0.0908 (0.0642)
<i>MinoStruc*X</i>	-0.0122 (0.0485)	-0.0371 (0.0724)	0.0859 (0.0569)	0.00229 (0.0455)	-0.110 (0.189)	-0.0629 (0.0674)
<i>NoNames*X</i>	-0.111* (0.0601)	0.115 (0.0885)	-0.0654 (0.0731)	0.0926* (0.0562)	-0.177 (0.282)	-0.0780 (0.0777)
Constant	0.240*** (0.0504)	0.269*** (0.0460)	0.278*** (0.0532)	0.278*** (0.0480)	0.267*** (0.0459)	0.260*** (0.0461)
Observations	2,179	2,179	2,179	2,179	2,179	2,179
R-squared	0.099	0.098	0.099	0.098	0.097	0.097
Controls	YES	YES	YES	YES	YES	YES
District FE	YES	YES	YES	YES	YES	YES
F-tests (p-values)						
MinoFree + MinoFree*X	0.336	0.744	0.986	0.835	0.941	0.366
MinoFree + MinoStruc*X	0.124	0.106	0.0408	0.126	0.112	0.0891

Panel B	Treatment interacted with $X$ :					
	Interaction with mother's characteristics			Interaction with child characteristics		
	(1)	(2)	(3)	(4)	(5)	(6)
	$X$ : Family has low income	$X$ : Father is respondent	$X$ : District high share of non- Westerners	$X$ : District low share of church members	$X$ : District on ghetto list	$X$ : District high share of voters for populist right-wing parties
<i>MinoFree</i>	0.00336 (0.0254)	0.00605 (0.0265)	-0.00745 (0.0308)	0.00494 (0.0246)	0.000444 (0.0234)	0.000493 (0.0239)
<i>MinoStruc</i>	-0.0372 (0.0251)	-0.0581** (0.0261)	-0.0606** (0.0307)	-0.0500** (0.0242)	-0.0443* (0.0232)	-0.0478** (0.0238)
<i>NoNames</i>	0.0373 (0.0306)	0.0429 (0.0327)	0.0610 (0.0380)	0.0245 (0.0300)	0.0324 (0.0287)	0.0334 (0.0290)
<i>MinoFree*X</i>	-0.0308 (0.0599)	-0.0326 (0.0531)	0.0116 (0.0463)	-0.0564 (0.0691)	-0.0742 (0.123)	-0.0364 (0.0859)
<i>MinoStruc*X</i>	-0.0510 (0.0604)	0.0491 (0.0535)	0.0315 (0.0458)	0.0365 (0.0709)	-0.0530 (0.118)	0.0168 (0.0825)
<i>NoNames*X</i>	-0.0680 (0.0761)	-0.0621 (0.0634)	-0.0759 (0.0562)	0.0119 (0.0848)	-0.142 (0.134)	-0.120 (0.113)
Constant	0.262*** (0.0463)	0.266*** (0.0466)	0.268*** (0.0470)	0.266*** (0.0461)	0.266*** (0.0459)	0.266*** (0.0460)
Observations	2,179	2,179	2,179	2,179	2,179	2,179
R-squared	0.097	0.098	0.098	0.097	0.097	0.097
Controls	YES	YES	YES	YES	YES	YES
District FE	YES	YES	YES	YES	YES	YES
F-tests (p-values)						
MinoFree + MinoFree*X	0.872	0.825	0.964	0.713	0.830	0.910
MinoStruc + MinoStruc*X	0.0913	0.0827	0.0990	0.117	0.115	0.123

Note: OLS regressions. Controls included are dummies for single parent, child is boy, mother's highest education is primary school, mother has college education, low income family, mother works, child in poor health, child low birthweight, child has handicap, child is non-western, father responded to survey, and a number of district dummies for high non-western population share, low church member share, being on official ghetto list, district high share of voters for populist right-wing parties, and district dummies. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

**Table A5: Estimation with interactions with respondent being non-Western and district characteristics**

	Treatments interacted with $X$			
	(1)	(2)	(3)	(4)
	$X$ : District high share of non- Westerners	$X$ : District low share of church members	$X$ : District on ghetto list	$X$ : District high share of voters for populist right-wing parties
<i>MinoFree</i>	0.00450 (0.0323)	0.0224 (0.0263)	0.0143 (0.0252)	0.00924 (0.0257)
<i>MinoStruc</i>	-0.0435 (0.0318)	-0.0383 (0.0256)	-0.0354 (0.0246)	-0.0361 (0.0252)
<i>NoNames</i>	0.0710* (0.0401)	0.0349 (0.0321)	0.0393 (0.0308)	0.0453 (0.0312)
<i>MinoFree*ChildNonWest</i>	-0.0949 (0.0791)	<b>-0.130*</b> (0.0691)	-0.101 (0.0669)	-0.0640 (0.0663)
<i>MinoStruc*ChildNonWest</i>	<b>-0.192**</b> (0.0944)	-0.0990 (0.0741)	-0.0721 (0.0727)	-0.0963 (0.0718)
<i>NoNames*ChildNonWest</i>	-0.0833 (0.109)	-0.0745 (0.0847)	-0.0504 (0.0826)	-0.0855 (0.0812)
<i>MinoFree*X</i>	0.0165 (0.0487)	-0.103 (0.0759)	-0.156 (0.161)	0.0288 (0.0923)
<i>MinoStruc*X</i>	0.0149 (0.0476)	0.0137 (0.0791)	-0.107 (0.177)	-0.0139 (0.0899)
<i>NoNames*X</i>	-0.0753 (0.0598)	0.0326 (0.0946)	-0.0594 (0.170)	-0.153 (0.130)
<i>MinoFree*ChildNonWest*X</i>	0.00451 (0.0922)	<b>0.216*</b> (0.115)	0.212 (0.185)	-0.248 (0.153)
<i>MinoStruc*ChildNonWest*X</i>	<b>0.196*</b> (0.106)	0.126 (0.126)	0.121 (0.190)	0.172 (0.135)
<i>NoNames*ChildNonWest*X</i>	0.0294 (0.130)	-0.0305 (0.163)	-0.125 (0.214)	0.154 (0.211)
Constant	0.260*** (0.0473)	0.258*** (0.0463)	0.258*** (0.0462)	0.258*** (0.0463)
Observations	2,179	2,179	2,179	2,179
R-squared	0.100	0.100	0.099	0.100
Controls	YES	YES	YES	YES

District FE	YES	YES	YES	YES
<b>F-tests (p-values)</b>				
<b><i>MinoFree</i> joint test with:</b>				
<i>MinoFree</i> * <i>ChildNonWest</i>	0.473	0.166	0.320	0.627
<i>MinoFree</i> * <i>X</i>	0.850	0.360	0.565	0.861
All interactions with <i>MinoFree</i>	0.709	0.205	0.489	0.321
<b><i>MinoStruc</i> joint tests with:</b>				
<i>MinoStruc</i> * <i>ChildNonWest</i>	<b>0.0185</b>	<b>0.0523</b>	<b>0.108</b>	<b>0.0564</b>
<i>MinoStruc</i> * <i>X</i>	0.302	0.315	0.267	0.315
All interactions with <i>MinoStruc</i>	<b>0.0614</b>	0.185	0.249	0.156

**Table A6: Characteristics of daycares favored by respondents who prefer daycare A Structured and B Free-play**

	A	B	t-test, p-values
	Structured	Free-play	
Transport from home to institution	66.5%	66.5%	0.99
Transport from institution to work	10.5%	8.6%	0.19
Opening hours	<b>17.7%</b>	<b>11.4%</b>	<b>0.00</b>
Waiting list	16.7%	15.3%	0.45
Pedagogical profile	<b>24.0%</b>	<b>20.4%</b>	<b>0.08</b>
Outdoor facilities and environment	<b>29.2%</b>	<b>36.6%</b>	<b>0.00</b>
Number of children	<b>13.9%</b>	<b>22.1%</b>	<b>0.00</b>
Forest daycare	<b>2.4%</b>	<b>6.6%</b>	<b>0.00</b>
Siblings in institution	15.9%	14.2%	0.34
Gender balance of staff	3.2%	4.4%	0.24
Education of staff	<b>2.8%</b>	<b>4.7%</b>	<b>0.07</b>
Lunch program	7.9%	8.4%	0.71
Good impression at visit	<b>42.9%</b>	<b>53.6%</b>	<b>0.00</b>
Other characteristics	3.8%	3.8%	1.00

Note: The question asked in the survey was “What factors do you find important when choosing a daycare for your child (more than one response is allowed)”

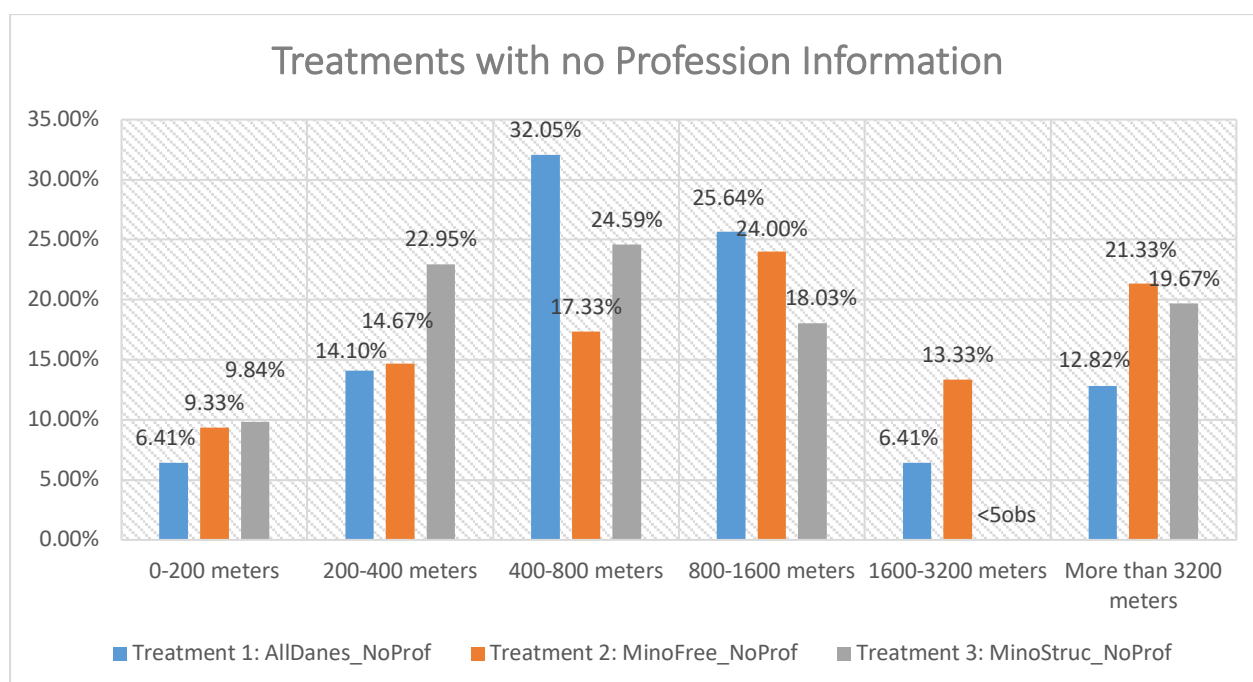
**Table A7**

		Share of all immigrants		Share of non-Western immigrants	
		Preference for		Preference for	
		Structured	Free-play	Structured	Free-play
1	<i>AllDanes_NoProf</i>	13.4%	10.7%	5.8%	4.5%
2	<i>MinoFree_NoProf</i>	13.4%	10.3%	5.6%	4.1%
3	<i>MinoStruc_NoProf</i>	13.2%	11.6%	5.4%	4.7%
4	<i>AllDanes_Prof</i>	14.2%	10.3%	5.9%	4.4%
5	<i>MinoFree_Prof</i>	14.7%	10.9%	6.3%	4.4%
6	<i>MinoStruc_Prof</i>	18.9% (*)	10.1%	9.0% (*)	4.0%
0	<i>NoNames</i>	14.1%	11.6%	6.1%	4.8%
Total		14.4%	10.8%	6.2%	4.4%

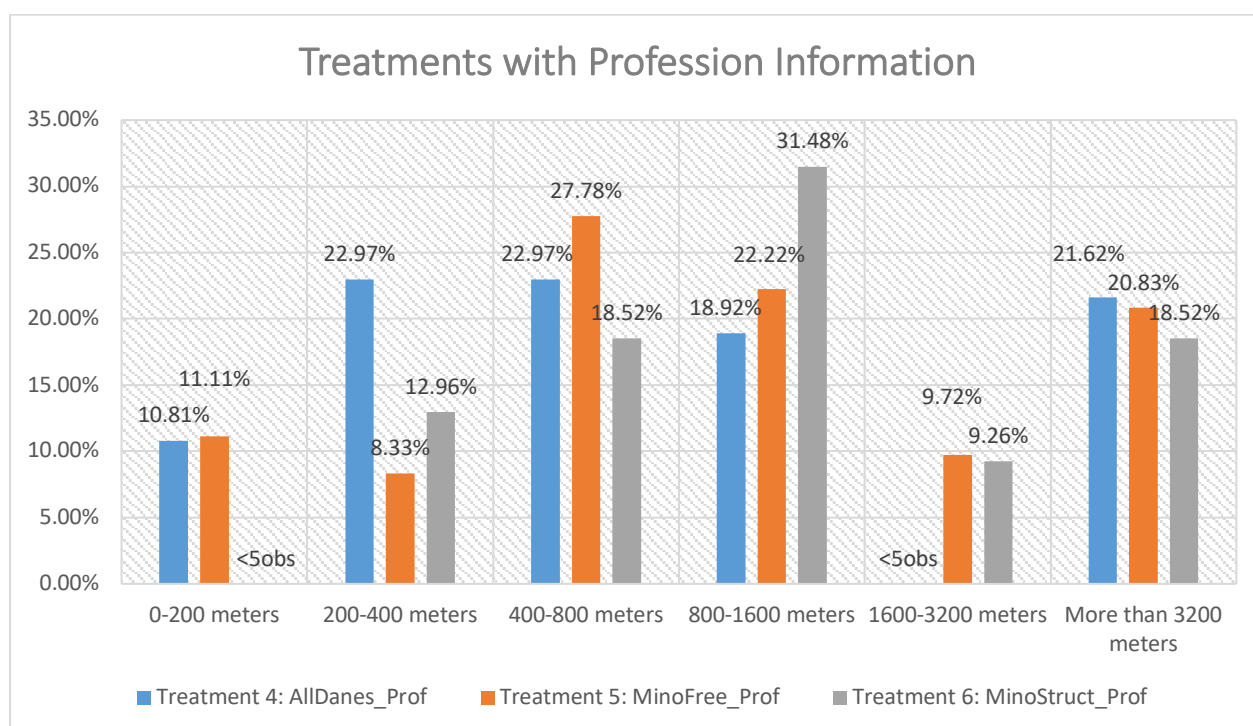
Note: Equality of shares in each column tested across treatments. Treatments 3 and 2 were separately tested against treatment 1. Treatments 6 and 5 were separately tested against treatment 4. Shares for treatment 6 – *MinoStruc\_Prof* – are (marginally) significantly larger (one-sided t-test) than corresponding shares for treatment 4 – *AllDanes\_Prof*.

**Figure A6 Willingness to travel for parents who prefer structured daycare**

Panel A. Treatments with no profession information



Panel B. Treatments with Profession Information

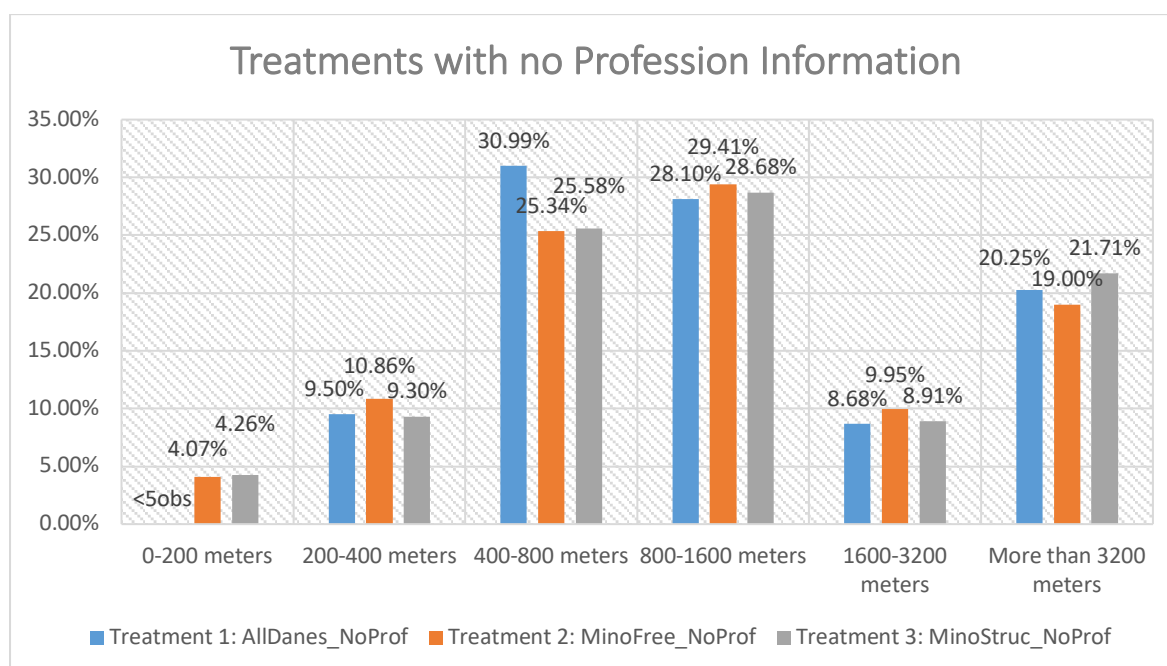


Note: Panel A plots WTT for parents who prefer structured daycare under treatment 1, 2 and 3 where the profession of the testifying parents are not given, and Panel B shows similar comparisons across treatments where information on profession was given to respondents.

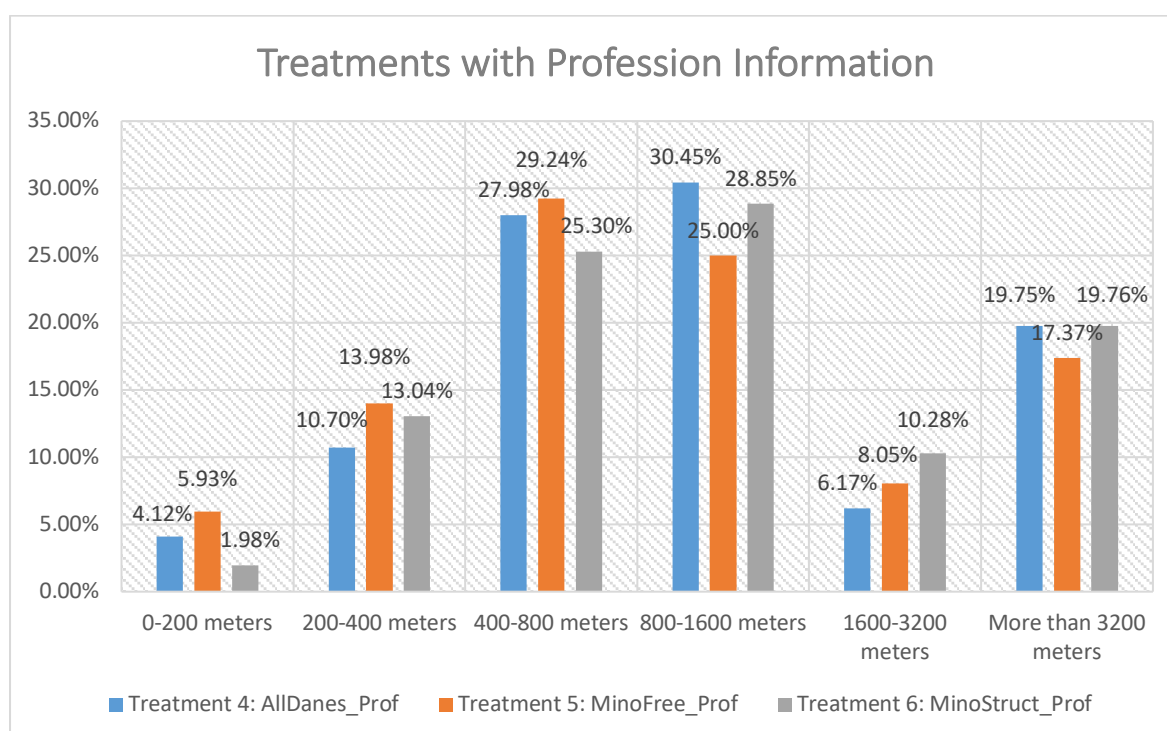


**Figure A2. Willingness to travel for Parents who initially prefer Free-play daycares**

Panel A. Treatments with no profession information



Panel B. Treatments with profession information



Note: Panel A plots WTT for parents who prefer free-play daycare under treatment 1, 2 and 3 where the profession of the testifying parents are not given, and Panel B shows similar comparisons across treatments where information on profession was given to respondents.

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