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Discrimination among pre-school children: Field experimental evidence

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HIGHLIGHTS

- We use a dictator game experiment to study discriminatory behavior of 3–5 year-olds.
- White and Hispanic children send more resources to black children than white children.
- Black children send equal amounts of resources to black and white children.
- This suggests preferences among the young do not show similar patterns as adults.

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ABSTRACT

Social scientists for years have documented the pervasiveness of discrimination in product and labor markets. While the literature has recently attempted to measure the nature of such discrimination, much less work has been done exploring the origins of discrimination. We make a modest step in this direction by reporting data from a field experiment attempting to measure discrimination amongst 3–5 year olds. Using a design that isolates discriminatory behaviors in economic games, we find that both White and Hispanic children send more resources to Black children than White children, whereas black children send equal amounts. This provides a first glimpse that suggests preferences amongst the young do not show similar patterns as preferences of adults.

1. Introduction

One would be hard-pressed to find a more divisive issue for modern economies than race and civil rights. One area of active research within economics is determining the magnitude and nature of discrimination[1] For example, List (2004) uses field experiments in a market for memorabilia to provide an empirical framework to disentangle the underlying forces behind differential market treatment. List (2004) finds a tendency for women, the elderly, and non-Caucasians to receive offers that are inferior to those received by majority agents, and that such behaviors are primarily driven by profit motives rather than a distaste for certain subgroups.

Such studies provide evidence of discrimination against minorities in markets, yet our understanding of where such preferences emanate remains speculative. We use a field experiment to explore how race impacts the choices made by children ages 3–5 in a sequence of dictator games. In each round, children were matched to teddy bears or other students and decided how many of their marshmallows to send them. We unobtrusively indicated the race of the match by showing pictures of hands (lighter or darker skin color) or pictures of teddy bear paws (light or dark brown).

One novelty of our design is that we use the teddy bears as a control in order to rule out that preferences are driven solely by dislike for darker or lighter colors. By comparing the aversion to giving to a darker color hand person relative to darker paw teddy bear, we disentangle the role of racial discrimination from preferences for colors in children's choices. While many dictator games with children use other children as the recipient, teddy bears are also developmentally appropriate for this age group, since they (and other inanimate objects) are commonly used as

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[1] Within economics, the two major theories of discrimination are (i) certain populations having a general "distaste" for minorities (Becker, 1975) or a general "social custom" of discrimination (Akerlof, 1980) and (ii) statistical discrimination (see, e.g., Arrow, 1972).

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recipients in similar resource allocation games in developmental psychology (e.g., see Chernyak et al., 2016).

We find that white and Hispanic children send more resources to black children than White children, whereas black children send equal amounts. This stands in an interesting contrast to the literature on discrimination (Riach and Rich, 2002; List, 2006), which reports broad discrimination against minorities. In related work, researchers find that adult giving is higher to in-group versus out-group peers (Fehr et al., 2008; Ben-Ner, 2009). Researchers also find that language discrimination in a bilingual city in Italy increases with the child's age (Angerer et al., 2016).

Our work is related to research on how people give resources to others. Results from the philanthropy literature suggest that minority fundraisers in a door-to-door campaign are less likely to obtain contributions and receive smaller gifts (List and Price, 2009). However, in another study, victims' race did not have an impact on willingness to donate to charity (Fong and Luttmer, 2009). We attempt to advance both of these strands of work with our field experiment.

If our dictator game measures discrimination in a manner the literature suggests, then our findings suggest that discriminatory preferences amongst the young do not show similar patterns as adults. This insight has important implications: school programs, and public approaches more generally, have an opportunity to stem the differential treatment observed in markets.

2. Experimental design

Our experiment was conducted at the Griffin Early Childhood Center (GECC) in 2010. The GECC serves as a 'laboratory' for experiments of this sort (see, e.g., List and Samak, 2013, which uses similar data to explore the origins of charitable acts). Our 117 experimental subjects were ages 3.27–5.22 ($M = 4.30, S.D. = 0.56$).

Children were taken out of the classroom to participate one-on-one with the experimenter. The experimenter read the script, including questions on understanding (see Appendix A), and took notes while the child made decisions. Participation took 10–15 min, and children were immediately rewarded at the end with a sticker. Children kept all of the marshmallows that they 'earned' during the experiment.

We designed dictator games in which children were matched with anonymous students or teddy bears from the other class. In each of 4 rounds, children selected how many marshmallows out of their allocated 5 to send to their match. The match was represented by a photo of the match's outstretched hand or paw. At the end of each game, all marshmallows the child allocated to herself were placed in her paper bag, and all marshmallows the child allocated to her match were placed in the paper bag for the match. Children were actually matched with another student from the other school, and these students received their marshmallows after the experiment was completed. The teddy bears did not receive resources.

Fig. 1 displays the photos that were shown for each of the matches used in the experiment. The race of the match was disclosed by changing the color of the match's hand (child match) or paw (teddy bear). The gender of the match was not disclosed, and using 'he' or 'she' was avoided throughout the experiment, since children are sensitive to gender at this age. Pictures of hands and paws were used to assure that attractiveness of the match does not play a role and to avoid disclosing gender.

One difference between our experiment and the standard dictator game is that each marshmallow sent by the child to his/her match was passed through a box before going to the match. All children participated in one regular round, and one round where the box converted the marshmallows to cotton balls (children were told teddy bears like cotton balls). Each subject participated in 4 dictator tasks: 2 with black recipients and 2 with white recipients. We randomized subjects to either the student match or teddy match treatment for all dictator tasks.

Table 1
Regression results.

	(1) Giving	(2) Giving
Black recipient	0.209	0.480**
	(0.147)	(0.204)
Teddy recipient	0.224	0.244
	(0.249)	(0.293)
Child age (years)	−0.0779	−0.0771
	(0.224)	(0.225)
Child is black	−0.154	0.214
	(0.238)	(0.294)
Child is black ∗ Black recipient		−0.742**
		(0.299)
Child is black ∗ Teddy recipient		−0.0410
		(0.298)
Additional experiment controls	YES	YES
	(0.0693)	(0.0689)
Constant	0.970	0.850
	(0.988)	(1.000)
Unique subjects	117	117
Observations	459	59
R-squared	0.026	0.034

Notes: Robust standard errors in parentheses. With 117 subjects and 4 decisions, we would expect 468 observations. However, 9 decisions include missing data, either because the experimenter failed to write it down or the subject chose not to respond to the question.
* $p < 0.1$.
** $p < 0.05$.*** $p < 0.01$.

3. Results

Fig. 2 summarizes our results. On average, white children send 0.97 marshmallows to white recipients and 1.47 marshmallows to black recipients. Similarly, Hispanic children send 1.18 marshmallows to white recipients and 1.55 marshmallows to black recipients. Alternatively, black children send more marshmallows to white recipients (1.33) relative to other blacks (0.99).

To test whether these differences are statistical at conventional levels, we pool the white and Hispanic data because in homogeneity tests we could not reject the null ($p > 0.66$ for all tests). Non-black children send significantly more resources to black recipients (1.53, $s.e. = 0.18$) than to white recipients (1.12, $s.e. = 0.18$) (paired t-test p-value $= 0.02$). Black children send fewer resources to blacks than to white recipients; yet, this result is not significant at conventional levels (paired t-test p-value $= 0.17$).

We conduct ordinary least squares regressions (see Table 1) including 4 decisions and clustering standard errors at the subject level, using the equation:

$$Giving_i = \alpha + \beta B_i + \delta T_i + \eta Z_i + \lambda X_i + \varepsilon_i$$

where i is the participant indicator, $Giving_i$ is the amount given to the recipient (0–5), B_i is a dummy for black recipient, T_i is a dummy for teddy bear, Z_i is a vector of other game-specific controls and X_i is a vector of subject demographics. Next, we estimate a regression that includes interactions with child race (dummy for black) and dummies for black recipient and teddy bear treatment:

$$Giving_i = \alpha + \beta B_i + \delta T_i + \eta Z_i + \lambda X_i + \emptyset\,(B_i * Child\ black_i) + \nu(T_i * Child\ black_i) + \varepsilon_i.$$

We see support for our unconditional analysis: while in the regression without interactions, we do not see impacts on giving by teddy or race of recipient, we do see significant effects when