

Children's Social Category-Based Giving and Its Correlates: Expectations and Preferences

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Do young children use information about gender and race to guide their prosocial gestures, and to what extent is children's selective prosociality related to other intergroup phenomena? Two studies tested 3- to 5-year-old children's allocation of resources to, social preferences for, and expectations about the behaviors of unfamiliar people who varied by gender or race. In both studies, a predominantly White sample of participants gave more resources to same-gender and White children than to other-gender and Black children, respectively. Correlational analyses showed that participants' gender-based giving was related to their social preferences for, and expectations about receiving help from, children who matched their gender. Race-based giving was only related to participants' expectations that they would be more likely to receive help from White than from Black children. The findings show that gender and race can guide children's resource distribution behavior and also provide insight into factors underlying children's allocation decisions.

Keywords: race, gender, social categories, children, prosocial behavior, fairness

Children show an interest in other people's well-being early in development (Eisenberg, Fabes, & Spinrad, 1998): Toddlers display empathy when strangers are distressed (Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992), help people they have known for just a short period of time (Warneken & Tomasello, 2007), and share toys with unfamiliar peers in naturalistic settings (Hay, Caplan, Castle, & Stimson, 1991). Children are also attuned to fairness and equality from an early age (Geraci & Surian, 2011; LoBue, Nishida, Chiong, DeLoache, & Haidt, 2011; Schmidt & Sommerville, 2011; Sloane, Baillargeon, & Premack, 2012). If time, energy, and material goods were plentiful, young children might provide gifts and assistance to everyone around them. In reality, however, resources are often limited. Given this, how do children select the recipients of their prosocial gestures?

A number of researchers have proposed that people might be especially motivated to act in ways that benefit members of their social ingroups, as such actions can reinforce productive social bonds between individual group members and promote the success of the group as a whole (Goette, Huffman, & Meier, 2006; Haidt, 2012; Trivers, 1971). Supporting this suggestion, studies show that young children are more generous toward their friends and schoolmates than they are toward disliked peers, strangers, and children from other schools (Birch & Billman, 1986; Fehr, Bernhard, & Rockenbach, 2008; Moore, 2009). For example, 4.5- to 6-year-old children are more willing to forfeit a valuable resource when doing so benefits a friend (vs. a stranger or disliked peer; Moore, 2009). Young children also consider information about friendships and family relations when they are not sharing their own resources: In one study, 3.5-year-old children guided a protagonist doll to share more resources with the protagonist's family members and friends than with dolls the protagonist did not know (Olson & Spelke, 2008).

That young children are especially generous toward friends and family members makes a good deal of sense. In most cases, children have a history of cooperation with their friends and family members, can reasonably expect those partnerships to continue, and may even directly benefit from their friends' and family members' successes. In this research, we consider the scope and generality of young children's tendency to favor members of their social ingroups by asking whether children engage in selective prosociality when they have no personal history or relationships with potential targets but nevertheless share their membership in a social category. Across two studies, we investigated whether 3- to 5-year-old children attend to gender and race when allocating resources to unfamiliar people. Additionally, we tested whether children's social category-based giving is related to other intergroup phenomena, specifically children's social preferences and expectations about the prosocial behaviors of others.

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Previous research provides evidence that children use gender and race to guide a host of different behaviors toward, and thoughts about, other people (for reviews, see [Aboud, 1988](#); [Mulvey, Hitti, & Killen, 2010](#); [Ruble, Martin, & Berenbaum, 2006](#)). For example, preschool- and elementary school-age children show social preferences based on gender and race, are aware of (and affected by) gender and racial stereotypes, and make gender- and race-based predictions about other people's attributes and behaviors ([Aboud & Skerry, 1984](#); [Albert & Porter, 1983](#); [Ambady, Shih, Kim, & Pittinsky, 2001](#); [Bigler & Liben, 1993](#); [Huston, 1983](#); [Kircher & Furby, 1971](#); [Martin, 1989](#); [McGlothlin & Killen, 2006](#); [McKown & Weinstein, 2003](#); [Muzzatti & Agnoli, 2007](#); [Shutts, Pemberton Roben, & Spelke, 2013](#)). In contrast to the large literature on children's preferences and inferences, surprisingly little research has focused on whether children use gender and race to guide their prosocial gestures—including decisions about how to allocate resources. Yet studying the developmental origins of social category-based resource allocation and its correlates is important: Resource distribution is a behavior that has meaningful consequences for potential recipients. Further, at least by adulthood, the gender and race of potential targets influences people's resource allocation behaviors across a range of contexts ([Schwartz, Struch, & Bilsky, 1990](#); [Solnick & Schweitzer, 1999](#); [Stepanikova, Triplett, & Simpson, 2011](#)). Understanding factors guiding children's prosocial decisions could illuminate strategies for ameliorating bias early in development.

Only a handful of studies have probed children's attention to gender and race when distributing resources to unfamiliar targets. [Kinzler and Spelke \(2011\)](#) found that White 2.5-year-old children were equally likely to give a toy to an unfamiliar White or Black adult. (In an identical paradigm, with language as the contrasting dimension, 2.5-year-old children were more likely to give a toy to a speaker of their native language than to a speaker of a foreign language; [Kinzler, Dupoux, & Spelke, 2012](#)). One study of older children, however, provides evidence for race-based resource allocation: A group of White children in preschool and first grade viewed either a silhouette of a child with light skin who was labeled as "White" or a silhouette of a child with darker skin who was labeled as "Black." When asked to share their own resources (e.g., 17 pieces of bubble gum) with the silhouette, participants were more generous toward the White target ([Zinser, Rich, & Bailey, 1981](#)). Finally, [Dunham, Baron, and Carey \(2011\)](#) found that 5-year-old girls gave more play coins to unfamiliar children of their own gender.

Despite the aforementioned findings, several questions about the origins and trajectory of social category-based resource allocation decisions remain unanswered. First, because studies of children's gender- and race-based giving have not included (or separately analyzed performance by) young preschool-age children, it is unclear how early in development such biases emerge. Second, [Zinser et al. \(1981\)](#) labeled the resource recipient's race, asked participants to sacrifice their own resources, and presented participants with only one recipient at a time. It is therefore unclear whether young children will use racial categories to guide their giving in the absence of racial labels, when they do not have to sacrifice their own resources, or when they could exhibit egalitarian behavior on a given trial. Third, because no studies have directly compared gender- and race-based giving in the same population, it is not clear whether one distinction might be more

influential in guiding children's resource allocation decisions. Gender-based responding emerges earlier and more robustly than race-based responding across a range of tasks, including measures focused on children's social preferences for, and inferences about, unfamiliar people ([Rhodes & Gelman, 2009](#); [Shutts, Banaji, & Spelke, 2010](#); [Shutts et al., 2013](#); [Waxman, 2010](#)). However, children see both gender and race as social categories and think that people in the same social category are obligated to promote the relative success of their own group ([Rhodes, 2013](#)).

Beyond expanding the modest literature on children's gender- and race-based resource distribution behavior, another important goal of this research was to determine whether children's allocation decisions are related to other prominent intergroup phenomena. Guided by previous research (see next paragraph), we focused on children's gender- and race-based social preferences and expectations about prosociality. Examining associations between children's resource allocation behaviors and other measures of social bias (i.e., gender- and race-based social preferences and expectations) can shed light on why children might attend to social categories when distributing resources.

Previous research provides some support for the hypothesis that children's gender- and race-based giving behaviors may be closely related to their gender- and race-based social preferences. One interpretation of the finding that children are more generous toward friends than disliked peers ([Moore, 2009](#)) is that children are inclined to preferentially allocate resources to people whom they like. Further, young children like people who match their gender and race, provided their own race is high in status ([Aboud & Skerry, 1984](#); [Martin, Fabes, Evans, & Wyman, 1999](#); [Shutts, Kinzler, Katz, Tredoux, & Spelke, 2011](#)).

Studies have also shown that children's resource allocation decisions are tied to their expectations about other people's prosociality ([Dunham et al., 2011](#); [Paulus & Moore, 2014](#); see also [DeJesus, Rhodes, & Kinzler, 2013](#)). Most relevant to the present research is the finding that 5-year-old children's tendency to give more resources to people who belonged to their own novel t-shirt group was correlated with the strength of their expectations that they would receive help from ingroup members ([Dunham et al., 2011](#)). Furthermore, children tend to expect positive behaviors from White people, as well as from people who match their own gender ([Aboud, 1988](#); [Bigler & Liben, 1993](#); [Huston, 1983](#); [Ruble & Martin, 1998](#)).

Overview of the Present Research

Three- to 5-year-old children saw pairs of target children who varied by either gender or race (depending on the condition to which the participant was randomly assigned). Previous research on young children's group-based resource allocation behavior guided our choice of sample sizes for Studies 1 and 2 ($N = 48$ per condition; see [Dunham et al., 2011](#)). Participants distributed token coins to the targets and were not allowed to keep any of these coins for themselves. All targets were unfamiliar to participants and were presented without social category labels. In addition to the resource distribution task, in Study 1 we included a measure of children's gender- or race-based social preferences, whereas in Study 2 we included a measure of children's gender- or race-based expectations about others' prosociality. We measured children's social preferences and expectations in separate studies because

piloting associated with Study 1 revealed that young children had difficulty completing three different measures in one testing session. The Method section for each study reports all measures, conditions, and data exclusions.

Across both studies, we tested the robustness of children's tendency to give resources preferentially to members of particular categories by varying the number of resources participants distributed across trials. On some trials, there were two potential recipients and two resources. For other trials, there were two potential recipients and an odd number of resources (i.e., one or three). We hypothesized that young children might only show social category-based giving when there was not an easy egalitarian solution (i.e., on one- and three-coin trials), as previous research shows that children value egalitarian distributions of resources. For example, Olson and Spelke (2008) found that their preschool-age participants guided a protagonist doll to distribute resources in an equitable manner when it was possible (e.g., one sticker to each doll when there were four stickers and four dolls). Moreover, at least as early as 6 years of age, children will discard resources in order to ensure the egalitarian distribution of resources across recipients (Shaw & Olson, 2012).

Study 1

Participants were randomly assigned to either the gender or the race condition. All participants completed a resource task followed by a preference task. In the resource task, participants distributed token coins to unfamiliar target children and placed any coins they did not wish to give out in an "extra bucket." On "critical trials," participants saw pairs of targets who differed in gender (a boy and a girl) or race (a Black and a White child), depending on condition. On "foil trials," participants saw pairs of targets who matched one another in gender and race. The purpose of the foil trials was to examine whether participants viewed the extra bucket as an attractive option. For the preference task, participants viewed pairs of unfamiliar children who differed in gender or race (depending on condition) and indicated whom they liked.

Method

Participants. The participants were ninety-six 3- to 5-year-old children (M age = 4.42 years; range = 3.01–5.98 years). There were 8 boys and 8 girls at each age (3, 4, 5 yr) in each condition (gender, race). Nine additional children were tested but excluded from analyses because they did not complete both tasks in the testing session. The majority of participants were White (96% in the gender condition and 98% in the race condition); none were Black.

Sessions took place in a university lab room or private room at a children's museum in a medium-sized city in the Midwestern region of the United States where the population is 79% White and 7% Black (U.S. Census, 2010). All parents were asked to indicate their level of education and occupation, and 96% of families provided this information. Of participants with completed questionnaire data, 93% came from families where at least one parent had earned a college degree; most parents listed professional occupations.

Materials. Both the resource task and the preference task included photograph pairs of smiling unfamiliar preschool-age

children who were matched for attractiveness (as judged by adult raters). Participants in the gender condition saw 14 unique pairs: 10 boy-girl pairs (six in the resource task and four in the preference task), two boy-boy pairs, and two girl-girl pairs (gender-matched pairs were presented in the resource task only on foil trials). All the faces in the gender condition were White. Participants in the race condition also saw 14 unique pairs: 10 White-Black pairs (six in the resource task and four in the preference task), two White-White pairs, and two Black-Black pairs (race-matched pairs were presented in the resource task only on foil trials). The faces shown in the race condition always matched the participants' own gender.

Participants viewed photograph pairs on a computer monitor in both tasks. In the resource task, a white bag and a clear bowl rested on the table below each photograph, while a small opaque container (the "extra bucket") appeared to the side of the monitor (see Figure 1). Participants distributed blue plastic poker chips on every trial.

Procedure and design. A White female experimenter tested all participants. Children saw different photograph pairs in the two tasks, and whether a particular photograph pair appeared in the resource or preference task varied across participants. The resource task was always presented first so that the preference task could not influence children's allocation decisions.

Resource task. The experimenter introduced the task by explaining that the poker chips were "coins" that could be exchanged for prizes and that people with more coins could get better prizes. The experimenter told participants they would not be able to keep any of the coins in the upcoming task for themselves. Next, the experimenter demonstrated how to distribute coins in the task using pictures of a pig and a sheep as potential recipients. The experimenter started with one coin, saying, "You could put the coin here [the clear container below the pig] if you wanted to give it to the pig; you could put the coin in here [the clear container below the sheep] if you wanted to give it to the sheep; or you could put the coin in here [the extra bucket] if you didn't want to give the coin to anyone." The experimenter completed similar demonstrations with sets of two and three coins. Finally, the experimenter asked participants to demonstrate the three different ways to distribute one coin, providing feedback and guidance if necessary.

Following the practice phase, participants completed 10 test trials. On each trial, the experimenter drew the participant's attention to the computer screen by saying, "See these kids?" The experimenter then placed one, two, or three coins at the participant's midline and said, "Where do you want to put those?" After the participant finished distributing the coins on a trial, the experimenter asked the participant to move any coins in the clear containers to the corresponding target children's bags. The experimenter then moved those bags out of view and introduced new bags for the next pair of targets.

The resource task for the gender condition included six critical trials; each featured a different (White) boy-girl pair (two trials with one coin, two with two coins, and two with three coins), as well as four foil trials. Two foil trials showed a White boy-boy pair (one trial with one coin, one trial with three coins) and two showed a White girl-girl pair (one trial with one coin, one trial with three coins). The resource task for the race condition included six critical trials; each featured a different (gender-matched) White-Black pair. Two foil trials showed a Black-Black pair (one trial with one coin, one trial with three coins) and two showed a

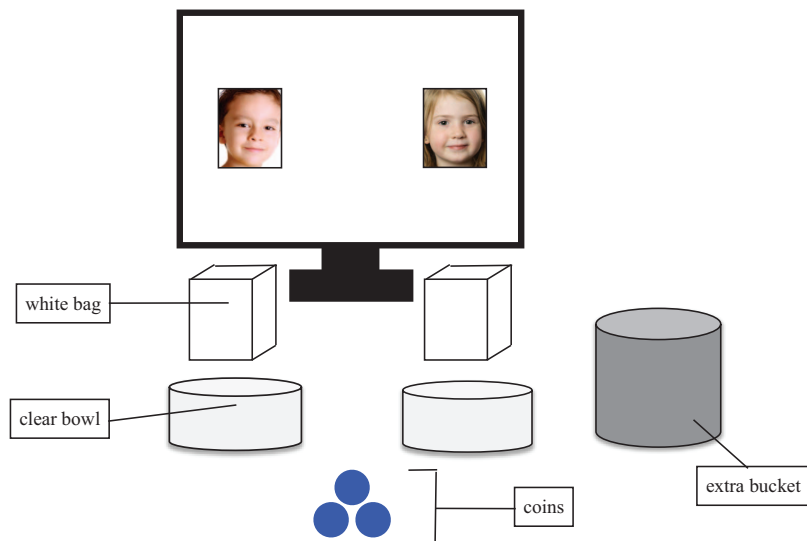


Figure 1. An example three-coin gender trial in the resource distribution task. See the online article for the color version of this figure.

White–White pair (one trial with one coin, one trial with three coins). In both conditions, foil trials were interspersed with critical trials, and the order of different trial kinds varied across participants. Half of trials in the gender condition presented the boy on the left, and half of trials in the race condition presented the Black child on the left.

Preference task. The experimenter introduced the task by saying, “Now we’re going to look at pictures of kids you have not seen before, and I just want you to tell me who you like. First we’ll practice with these cartoons.” The experimenter then introduced two cartoon monsters (one orange and one green) and explained all the ways in which the participants could indicate their preferences (i.e., that pointing to the orange monster would indicate liking the orange monster, that pointing to the green monster would indicate liking the green monster, and that pointing to both monsters would indicate liking both monsters). The participant then practiced indicating different preferences (for the orange monster, for the green monster, and for both monsters). After the practice phase, participants viewed pairs of unfamiliar children who varied according to the same dimension as in the resource task (i.e., race or gender). On each of four trials, the experimenter asked, “Who do you like?” The lateral positions of faces varied across trials, as described in the previous task.

Scoring and analysis strategy. We computed a “giving score” for each participant in the resource task. We subtracted the number of coins given to targets who differed from the participant’s gender from the number given to targets who matched participant’s gender (in the gender condition) and subtracted the number of coins given to Black targets from the number given to White targets (in the race condition); giving scores ranged from -12 to 12 . Giving score calculations considered only participants’ responses on critical trials. In the preference task, choosing a same-gender or White target was scored as 1, choosing an other-gender or Black target was scored as 0, and choosing both or neither target was scored as .5. These points were then summed

across the four trials for each participant, and scores ranged from 0 to 4.

The Results section for Study 1 (and Study 2) contains descriptive information about participants’ performance on one-, two-, and three-coin trials, as well as correlational analyses to test for effects of participant age in each condition. Yet participants completed just two critical trials for each coin number (1, 2, and 3), and cell sizes for each age were modest (just 16 participants at 3, 4, and 5 years in each condition). We therefore combined data from Studies 1 and 2 for statistical analyses focused on participant age and coin number to have more power to detect effects (see “Combined Analyses” following Study 2).

Results

The analyses below consider data from all 96 participants. However, the findings are the same when only White participants’ responses are included.

Resource task. On critical trials, participants in the gender condition gave more coins to same-gender than to other-gender children (same-gender $M = 6.71$, $SD = 1.89$ vs. other-gender $M = 4.33$, $SD = 1.86$; giving score $M = 2.38$, $SD = 3.49$; one-sample t -test to chance: $t(47) = 4.72$, $p < .001$, $d = .68$). Participants in the race condition allocated more coins to White than to Black children on critical trials (White $M = 6.35$, $SD = 1.74$ vs. Black $M = 4.31$, $SD = 1.82$; giving score $M = 2.02$, $SD = 3.00$; one-sample t -test to chance: $t(47) = 4.67$, $p < .001$, $d = .67$). Giving scores in the two conditions did not differ from one another, $t(94) = 0.53$, $p = .595$, $d = .11$. Independent samples t -tests indicated no effect of participant gender on giving scores in either condition (both $ps > .319$, both $ds < .29$), and participant age was not correlated with giving scores in either condition (both $ps > .195$, both $rs < .21$).

Table 1 displays participants’ responses on one-, two-, and three-coin trials in both conditions. Replicating previous research

Table 1
Responses in the Resource Distribution Task, Study 1

Trial type	Favor same gender (%)	Favor other gender (%)	Equal giving (%)	Sample size
Gender condition				
1-coin trial A	58.33	39.58	2.08	48
1-coin trial B	70.83	20.83	8.33	48
2-coin trial A	14.58	8.33	77.08	48
2-coin trial B	18.75	8.33	72.91	48
3-coin trial A	58.33	20.83	20.83	48
3-coin trial B	50.00	25.00	25.00	48
Trial type	Favor White (%)	Favor Black (%)	Equal giving (%)	Sample size
Race condition				
1-coin trial A	64.58	27.08	8.33	48
1-coin trial B	68.09	19.15	12.77	47
2-coin trial A	18.75	2.08	79.17	48
2-coin trial B	14.89	4.26	80.85	47
3-coin trial A	47.92	31.25	20.83	48
3-coin trial B	40.43	29.79	29.79	47

Note. A and B refer to the 1st and 2nd trial (respectively) of that type that participants encountered in the task. The numbers in the 2nd and 3rd columns of the table indicate the percentage of participants who distributed more coins to one target than the other; the numbers in the 4th column indicate how many participants gave the same number of coins to the 2 targets. The only way to accomplish "equal giving" on a 1- or 3-coin trial was to use the extra bucket. All participants completed all trials in the gender condition; however, 3 trials were not completed in the race condition.

(Olson & Spelke, 2008), most participants gave one resource to each target when there was exactly one resource for each target (i.e., two-coin trials). However, on one- and three-coin trials, the most frequent response was to give more coins to same-gender targets in the gender condition and more coins to White targets in the race condition.

Participants could have distributed coins in an egalitarian manner on one- and three-coin trials by using the extra bucket (and some participants did; see Table 1). However, even when targets within a pair matched one another in gender and race (i.e., on foil trials), participants neglected the extra bucket on most trials: The extra bucket was used on 10% and 14% of one-coin foil trials in the gender and race conditions, respectively; it was used on 33% and 39% of three-coin foil trials in the gender and race conditions, respectively. Paired-samples *t* tests indicated that participants placed the same number of coins in the extra bucket on one- and three-coin foil trials as they did on one- and three-coin critical trials (all *ps* > .269, all *ds* < 0.16). Discarding a resource to achieve egalitarian distributions does not appear to be a dominant strategy for younger children as it is for older children (Shaw & Olson, 2012).

Preference task. Participants in the gender condition preferred same-gender over other-gender children (Chance = 2; preference score *M* = 2.88, *SD* = 1.00), $t(47) = 6.05$, $p < .001$, $d = 0.88$, whereas those in the race condition preferred White children over Black children (chance = 2; preference score *M* = 2.71, *SD* = 0.95), $t(47) = 5.24$, $p < .001$, $d = 0.75$. Participants' preference scores did not differ between conditions, $t(94) = 0.79$, $p = .434$, $d = 0.16$. Independent samples *t* tests revealed no effect of participant gender in the race condition, $t(46) = 1.15$, $p = .256$, $d = 0.33$, but female participants had higher preference scores in the gender condition, $t(46) = 2.59$, $p = .013$, $d = 0.74$ (see also Shutts et al., 2013). Participant age was not correlated with pref-

erence scores in the gender or the race condition (both *ps* > .133, both *rs* < .22).

Relations between tasks. There was a significant correlation between participants' giving and preferences scores in the gender condition, $r(47) = .40$, $p = .005$, but not in the race condition, $r(47) = .12$, $p = .416$.

Discussion

Participants' behavior in the resource task provides evidence that preschool-age children attend to gender and race information when allocating material goods to unfamiliar children. Further, our results suggest that there is a close relation between young children's giving to gender ingroup members and their liking of gender ingroup members. However, the findings from Study 1 do not support a parallel conclusion about children's tendency to allocate more resources to White than to Black children: Children's scores in the resource task and preference task were unrelated.

In Study 2, we explored another factor that might be related to children's giving: expectations about the prosocial behavior of others. As noted in the introductory section, young children tend to hold positive expectations about the behavior of White children (Aboud, 1988), and Dunham et al. (2011) found that 5-year-old children's tendency to give more resources to novel t-shirt group members was closely related to their expectations of preferential treatment by members of their own t-shirt group. Accordingly, Study 2 tested whether children expect to receive prosocial treatment from White children over Black children and whether such expectations are associated with a tendency to give more resources to White than to Black children. In addition to administering a race condition, we also tested children's expectations and allocation decisions based on gender.

Study 2

Participants were randomly assigned to either the gender or the race condition. All participants completed a resource distribution task, as well as a task that measured their social category-based expectations about receiving prosocial treatment from other children. The resource task was similar to Study 1. In the expectations task, participants saw pairs of unfamiliar children who differed in gender or race (depending on condition) and indicated which targets might behave prosocially toward them in a variety of scenarios.

Method

Participants. The participants were ninety-six 3- to 5-year-old children (48 boys; M age = 4.45 years; range = 3.08–5.99 years). We tested equal numbers of children at each age. Eleven additional children were tested but excluded from analyses because they did not complete both tasks in the testing session. Participants came from the same population and were tested under the same conditions as children in Study 1. The majority of participants were White (96% in the gender condition and 100% in the race condition). Eighty-six percent of families provided information about parent education and occupation. Of participants with completed questionnaire data, 90% came from families where at least one parent had earned a college degree, and most parents listed professional occupations.

Materials. Both tasks included photograph pairs of smiling unfamiliar preschool-age children who were matched for attractiveness (as judged by adult raters). Participants in the gender condition saw 12 unique boy–girl pairs (six in the resource task and six in the expectations task), whereas those in the race condition saw 12 unique White–Black pairs (six in the resource task and six in the expectations task). As in Study 1, all the faces in the gender condition were White, and participants in the race condition always viewed faces that matched their own gender.

Procedure and design. It is reasonable to think that children's distribution behavior could influence their prosocial expectations; it is also reasonable to think that children's reasoning about expectations could influence their giving decisions. Accordingly, we opted to counterbalance task order in Study 2: Half of participants in each condition completed the resource task first, and half completed the expectations task first. Participants saw different photograph pairs in the two tasks; whether a particular photograph pair appeared in the resource or expectations task varied across participants. A White female experimenter tested all participants.

The procedure and design for the resource task were the same as in Study 1, except there were no foil trials. The only purpose of the foil trials in Study 1 was to assess participants' tendency to use the extra bucket when potential recipients did not differ in gender or race. Having established that participants used the extra bucket at equal rates (and rather infrequently) on foil and critical trials, there was no reason to include foil trials in Study 2. All participants completed just six trials (two one-coin trials, two two-coin trial, and two three-coin trials) featuring children who differed in either gender or race (depending on condition).

Expectations task. The experimenter introduced the task by saying, "We're going to look at a bunch of pictures of kids and

guess who would help you. First we'll practice with these cartoons." The experimenter then used pictures of two different cartoon monsters to explain how participants should indicate their expectations in the task (i.e., by pointing to one or both of the images on the screen).

After practicing how to indicate their responses, participants viewed pairs of target children who varied by gender or race (depending on condition). Participants were asked to indicate who might behave prosocially toward them in various situations (e.g., "If you had an empty page in a sticker book and both of these kids had extra stickers, who would share some stickers with you?" or "If you fell over on the playground and both of these kids were close by, who would help you get back up?"). The particular face pairs used for each type of question were counterbalanced across participants. Half of trials in the gender condition presented the boy on the left, and half of trials in the race condition presented the Black child on the left.

Scoring. "Giving" scores were computed according to the process described in Study 1. An "expectations" score was computed for each participant by assigning one point for choosing a same-gender or White target, zero points for choosing an other-gender or Black target, and half a point for choosing both or neither of the targets on each trial; the points were then summed across the trials; scores ranged from 0 to 6.

Results

The analyses below consider data from all 96 participants, but the findings are the same when only White participants' responses are included. Preliminary analyses revealed no effect of task order on participants' responses in either condition, therefore this variable was omitted from subsequent analyses.

Resource task. On critical trials, participants in the gender condition gave more coins to same-gender than to other-gender children (same-gender $M = 6.98$, $SD = 2.49$ vs. other-gender $M = 4.14$, $SD = 2.07$; giving score $M = 2.84$, $SD = 4.38$; one-sample t -test to chance: $t(47) = 4.53$, $p < .001$, $d = .65$). Giving scores in the race condition were marginally above chance, indicating a tendency to favor White over Black children (White $M = 5.64$, $SD = 2.24$ vs. Black $M = 4.51$, $SD = 2.16$; giving score $M = 1.11$, $SD = 3.89$; one-sample t -test to chance: $t(47) = 1.95$, $p = .057$, $d = .29$). Giving scores in the two conditions did not differ from one another, $t(94) = 1.64$, $p = .104$, $d = .34$. Independent samples t -tests indicated no effect of participant gender on giving scores in either condition (both $ps > .125$, both $ds < .45$), and participant age was not correlated with giving scores in either condition (both $ps > .116$, both $rs < .23$). Table 2 presents detailed information about participants' performance on one-, two-, and three-coin trials in both conditions.

Expectations task. Participants in the gender condition expected prosocial gestures from same-gender targets (chance = 3; expectations score $M = 4.17$, $SD = 1.58$), $t(47) = 5.12$, $p < .001$, $d = 0.74$, whereas those in the race condition expected prosocial gestures from White targets (chance = 3; expectations score $M = 3.84$, $SD = 1.65$), $t(47) = 3.53$, $p < .001$, $d = 0.51$. Participants' expectations scores did not differ between the gender and race condition, $t(94) = .98$, $p = .330$, $d = .20$. Independent samples t tests indicated no effect of participant

Table 2
Responses in the Resource Distribution Task, Study 2

Trial type	Favor same gender (%)	Favor other gender (%)	Equal giving (%)	Sample size
Gender condition				
1-coin trial A	70.83	20.83	8.33	48
1-coin trial B	56.25	33.33	10.42	48
2-coin trial A	29.79	10.64	59.57	47
2-coin trial B	25.53	6.25	68.75	48
3-coin trial A	48.94	25.53	25.53	47
3-coin trial B	58.33	18.75	22.92	48
Trial type	Favor White (%)	Favor Black (%)	Equal giving (%)	Sample size
Race condition				
1-coin trial A	60.42	25.00	14.58	48
1-coin trial B	41.67	35.41	22.91	48
2-coin trial A	19.15	12.77	68.09	47
2-coin trial B	23.91	19.57	56.52	46
3-coin trial A	43.75	29.17	27.08	48
3-coin trial B	40.42	29.79	29.79	47

Note. A and B refer to the 1st and 2nd trial (respectively) of that type that participants encountered in the task. The numbers in the 2nd and 3rd columns of the table indicate the percentage of participants who distributed more coins to one target than the other; the numbers in the 4th column indicate how many participants gave the same number of coins to the 2 targets. The only way to accomplish "equal giving" on a 1- or 3-coin trial was to use the extra bucket. There were a total of 2 missing trials in the gender condition; in the race condition, 4 trials were not completed.

gender in race condition, but female participants had higher expectations scores than male participants in the gender condition, $t(46) = 2.19$, $p = .034$, $d = 0.64$. Participant age was not correlated with expectations scores in either condition (both $ps > .589$, both $rs < .08$).

Relations between tasks. Participants' giving and expectations scores were significantly correlated in both conditions: gender, $r(47) = .50$, $p < .001$; race, $r(47) = .56$, $p < .001$.

Discussion

As in Study 1, participants in Study 2 tended to give more resources to same-gender and White targets. The results from the expectations task provide evidence that young children also expect prosocial gestures from same-gender and White children (over other-gender children and Black children, respectively). Finally, the significant correlations between measures in both conditions indicate that children's biased giving is closely related to their expectations about how people from different social categories will behave toward them; we return to this idea in the General Discussion.

Combined Analyses for Studies 1 and 2

Coin number. For combined analyses of the resource task data from Studies 1 and 2, we again computed giving scores for each trial type by subtracting the number of coins given to targets who matched the participant's gender from the number given to targets who differed from the participant's gender (in the gender condition) and by subtracting the number of coins given to Black targets from the number given to White targets (in the race condition). These giving scores were then transformed into adjusted giving scores by dividing the difference scores from each trial type by two on one-coin trials, by four on the two-coin trials, and by six on the three-coin trials; thus, the

adjusted giving scores for each trial type ranged from -1 to 1 . To gain a clearer picture of participants' performance on one-, two-, and three-coin trials, we combined the resource task data from Studies 1 and 2 and conducted a repeated-measures ANOVA with trial type (one-coin vs. two-coin vs. three-coin) as a within-subject factor and condition (gender or race) as between-subject factor. This analysis revealed only an effect of trial type, $F(1, 190) = 11.04$, $p = .001$, $\eta_p^2 = .11$; there was no effect of condition and no interaction of condition and trial type (both $ps > .113$, both $\eta_p^2s < .01$). Biased giving was more pronounced on one-coin trials than on two- or three-coin trials (both $ps < .001$, both $ds > 0.33$). Scores on three-coin trials were marginally higher than scores on two-coin trials ($p = .065$, $d = 0.15$). Nevertheless, scores were significantly above chance for all trial types (see Table 3).

Participant age. Combined analyses of the resource task data from Studies 1 and 2 revealed that at every age, participants gave more coins to same-gender children and more coins to White children. In the gender condition, mean giving scores exceeded chance at 3 years, $t(31) = 2.32$, $p = .027$, $d = 0.41$; 4 years, $t(31) = 3.29$, $p < .001$, $d = 0.72$; and 5 years, $t(31) = 5.08$, $p < .001$, $d = 0.90$. Similarly, in the race condition, mean giving scores exceeded chance at 3 years, $t(31) = 3.55$, $p = .001$, $d = 0.63$; 4 years, $t(31) = 2.53$, $p = .017$, $d = 0.45$; and 5 years, $t(31) = 2.11$, $p = .036$, $d = 0.39$. Table 4 presents the means for each age in each condition. Participant age was correlated with biased giving in the gender condition but not in the race condition: gender, $r(95) = .22$, $p = .031$; race, $r(95) = .06$, $p = .551$.

Relations between tasks. We conducted Fisher's Z transformations to compare the strength of task correlations from Studies 1 and 2. For the gender condition, the strength of the correlation between participants' giving and social preferences scores (Study

Table 3
Giving by Trial Type and Condition in the Resource Distribution Task, Studies 1 and 2

Trial type	Giving score <i>M</i> (<i>SD</i>)	Adjusted giving score <i>M</i> (<i>SD</i>)	One sample <i>t</i> test
Gender condition			
1-coin trials	0.69 (1.28)	0.35 (0.64)	$t(95) = 5.25, p < .001, d = 0.54$
2-coin trials	0.58 (1.53)	0.14 (0.38)	$t(95) = 3.68, p < .001, d = 0.38$
3-coin trials	1.40 (2.47)	0.23 (0.41)	$t(95) = 5.54, p < .001, d = 0.57$
Race condition			
1-coin trials	0.66 (1.30)	0.31 (0.65)	$t(95) = 4.80, p < .001, d = 0.51$
2-coin trials	0.32 (1.52)	0.08 (0.38)	$t(95) = 2.08, p = .040, d = 0.21$
3-coin trials	0.66 (2.29)	0.11 (0.38)	$t(95) = 2.71, p = .008, d = 0.29$

1) was similar to the strength of the correlation between participant's giving and expectations scores (Study 2), $Z(94) = 0.60, p = .548$. For the race condition, the association between participants' giving and preferences scores (Study 1) was significantly weaker than the correlation between participants' giving and expectations scores (Study 2), $Z(94) = 2.43, p = .015$.

General Discussion

Previous research provides evidence that children consider the nature of their relationships with particular individuals (e.g., whether someone is a friend or foe; Moore, 2009) when deciding how to allocate resources. Here we show that children engage in biased resource distribution behavior even when none of targets before them are known social partners: Children as young as 3 years of age gave more resources to unfamiliar White than to unfamiliar Black targets and were also more generous toward unfamiliar same-gender (vs. unfamiliar other-gender) children. Furthermore, in contrast to other intergroup phenomena (see Rhodes & Gelman, 2009; Shutts, Banaji, & Spelke, 2010; Shutts et al., 2013; Waxman, 2010), resource allocation seems to be a case where gender- and race-based responding are equally robust. Finally, children's allocation of resources to same-gender individuals was correlated with both their social preferences for and expectations about receiving prosocial treatment from same-gender individuals. The tendency to allocate resources to White individuals was correlated with children's race-based expectations but not with their race-based preferences.

Table 4
Giving by Age and Condition in the Resource Distribution Task, Studies 1 and 2

Age	Giving score <i>M</i> (<i>SD</i>)	Same <i>M</i> (<i>SD</i>)	Other <i>M</i> (<i>SD</i>)
Gender condition			
3 years	1.69 (4.10)	6.53 (2.12)	4.84 (2.17)
4 years	2.81 (3.91)	6.88 (2.24)	4.06 (1.88)
5 years	3.41 (3.79)	7.16 (2.30)	3.75 (1.70)
Age	Giving score <i>M</i> (<i>SD</i>)	White <i>M</i> (<i>SD</i>)	Black <i>M</i> (<i>SD</i>)
Race condition			
3 years	1.41 (2.24)	6.03 (1.38)	4.59 (1.64)
4 years	1.52 (3.41)	5.83 (2.09)	4.31 (1.94)
5 years	1.78 (4.51)	6.17 (2.44)	4.41 (2.33)

One interpretation of the correlational findings from the gender conditions is that children allocate more resources to same-gender individuals both because they like them and because they expect that people who match their own gender would behave prosocially toward them. Alternatively, a general positive disposition toward same-gender individuals may underlie children's responses across all three measures. The absence of a correlation between children's race-based giving and their race-based social preferences suggests two conclusions: First, a general positive disposition toward White individuals may not underlie children's race-based giving. Second, children's expectations about how White individuals will treat them may underlie their race-based resource allocation decisions.

Although the present findings provide support for the idea that children's resource allocations are guided by their social preferences (in the case of gender) and expectations about others' prosociality (in the case of gender and race), the evidence in our studies is only correlational in nature. Thus, a critical direction for future research will be to conduct experiments that manipulate children's gender- and race-based preferences and expectations. Such research can test the hypothesis that preferences and expectations play a causal role in guiding children's resource allocation decisions.

Another critical direction for future research is the inclusion of participants from different racial groups. Testing children from different groups would provide important information about the generality of all of the findings reported here but could be particularly interesting in the case of race-based giving: One possibility is that all children possess a general tendency to favor members of their racial ingroup when distributing resources. However, another possibility is that children tend to preferentially allocate resources to members of high-status racial groups (instead of, or in addition to, giving to racial ingroup members). Studies of children from lower status groups (e.g., African American children) could shed light on these possibilities. Further, including direct measures of children's perceptions of race and status—and testing for associations between status perceptions and race-based allocation decisions—could be especially useful.

Given that neither the preference nor the expectations measure captured all the variance associated with children's giving behavior in either condition, it will also be important for future research to examine other factors related to children's allocation decisions. In the case of race, one additional possibility is that children's allocation decisions are related to their own observations of society-wide inequity between racial groups. In the United States,

White people are (on average) wealthier than Black people (Oliver & Shapiro, 2001; Wolff, 2001), and children may be inclined to mimic this inequality when asked to distribute resources themselves. Indeed, recent research provides evidence for such "system justifying" (Jost & Banaji, 1994) tendencies in young children: In one study, 3.5- to 7.5-year-old children distributed resources across racial groups in a manner that paralleled resource allocations previously demonstrated by adults (Olson, Dweck, Spelke, & Banaji, 2011).

Because participants in the present research were drawn from a fairly homogenous community it is reasonable to question whether participants' responses in the race condition of the resource distribution task could be explained by system-justifying tendencies. However, previous research provides evidence that White children in communities with racial compositions similar to that of the present research are aware of race-based wealth disparities: For example, Radke and Trager (1950) found that White children from predominantly White schools and neighborhoods thought White individuals were more likely than Black individuals to live in expensive houses (see also Zinser, Rich, & Bailey, 1981). How might children learn about racial inequality? One possibility is that young children are capable of glean information about race and status even from very limited observations of inequality in their community. In support of this idea, Horwitz and colleagues (2014) recently found that 4- to 5-year-old children could report the relative status of two novel social groups after just 4 min of exposure to information about the groups' material wealth. A second possible source for young children's learning about race and status is media. Analyses of programming content reveal that Black people tend to be depicted as lower in socioeconomic status than White people (Gilens, 1996; Signorielli, 2009; Signorielli & Kahlenberg, 2001). Nevertheless, future research is necessary to test whether White children's tendency to give more resources to White than to Black children can be explained by a tendency to perpetuate the status quo.

Yet another direction for future research concerns the role of social experiences in guiding children's giving to members of different social categories. Research conducted in the minimal groups tradition suggests that people do not need to have experiences with ingroup or outgroup members to engage in group-based resource allocation. Classic studies by Tajfel (1970) showed that adolescents preferentially allocated resources to members of a group to which they had just been assigned, and more recent studies by Dunham et al. (2011) revealed similar effects in 5-year-old children. Nevertheless, these findings do not rule out the possibility that social experiences with members of different categories could alter children's resource allocation decisions. For example, collaborative interactions with racial outgroup members could change children's race-based expectations about others' behavior, and this in turn could change children's use of race to guide their allocation of resources. Studies of children in more racially diverse social environments as well as studies of children in gender-segregated schools may be especially useful in shedding light on the role of experiences in guiding children's category-based resource allocation decisions.

Although the findings from the present research suggest that young children are neither egalitarian nor blind to social cate-

gory distinctions when allocating resources, other work suggests a degree of hope about children's discriminant prosociality and the possibility for change. A number of studies show that children notice and value equitable distributions of resources from an early age (Geraci & Surian, 2011; LoBue, Nishida, Chiong, DeLoache, & Haidt, 2011; Sloane, Baillargeon, & Premack, 2012). Additionally, when children are asked to judge the actions of others, they rate situations in which individuals distribute resources equally across social groups more positively than situations where individuals advantage a particular group (DeJesus, Rhodes, & Kinzler, 2014). Finally, at least by first grade, children judge practices that advantage a particular gender or racial group as wrong and describe such behavior as "unfair and discriminatory" (Killen, 2007; Killen & Stangor, 2001). Thus, an important question for future research concerns whether and how children might connect their explicit judgments and stated values to their prosocial actions.

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