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Fairness and inequality acceptance in children and adolescents: A survey on behaviors in economic experiments

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Abstract

This survey article provides an overview of the recent experimental economic literature on fairness-related behaviors in children and adolescents. We discuss different motives underlying fair behavior, summarize the development of fairness and inequality acceptance across different developmental stages, and we shed light on behavioral heterogeneity with respect to gender, SES, and cultural background. Moreover, we also discuss the role of preferences and social norms as determinants of fair behavior in children and adolescents. To learn about the origins of fair behavior, we address the influence of social environments, such as the family and we discuss the potential contribution of the genetic disposition.

KEYWORDS

children and adolescents, experiment, fairness, inequality acceptance, social norms, social preferences

JEL CLASSIFICATION

C91, D01, D91

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1 | INTRODUCTION

A large body of evidence in the social sciences has shown that fairness considerations play an important role in people's decisions in social contexts and the integration of fairness motives into models of decision-making has far-reaching implications for our understanding of human behavior in particular, as well as economic and social processes in general (e.g., Bewley, 1999; Bolton & Ockenfels, 2000; Bruhin et al., 2019; Camerer & Thaler, 1995; Cappelen & Tungodden, 2019; Charness & Rabin, 2002; Dufwenberg & Kirchsteiger, 2004; Falk & Fischbacher, 2006; Fehr & Gächter, 2000; Fehr & Schmidt, 1999; Kahneman et al., 1986; Levine, 1998; Rabin, 1993). Rawls (1991), who is concerned with justice as fairness, for example, proposes two principles that include fair equality of opportunities and the societal position of the worst-off. The economic decision-making literature, on the other hand, is concerned with fairness with regard to outcomes rather than opportunities (for an overview of the economics of fairness literature, see Cappelen & Tungodden, 2019). Importantly, this literature mostly focuses on the implementation of fairness in distributional situations, that is, situations in that a certain amount of, for example, money is shared among individuals, independent of individual background. The focus on distributional situations and economic games provides a limited perspective on the broad concept of fairness and equality, which we adopt here. This literature is concerned with measuring the extent to which an individual acknowledges the consequences of her own decision-making for other individuals, thus, the value she attaches to other individuals' outcomes in a distributional situation (Bolton & Ockenfels, 2000; Bruhin et al., 2019; Fehr & Schmidt, 1999). In simple distributional situations, for example, an individual shares a given amount of money between herself and others or only between others, and thereby implements either more or less inequality in distributional outcomes (Fehr & Schmidt, 1999). Fairness considerations in distributional situations may also induce an individual to react in a certain way following a prior sharing decision by the other individual. If she has, for example, been treated nicely, choosing a kind action towards the other individual could also be considered fair; but if she has been treated in a mean way, reacting in an unkind way could be considered adequate following fairness considerations (Rabin, 1993). Fairness in distributional situations is not only tied to observable outcomes, but also to intentions. Independent of the outcome, a distributive action may be assessed as fair if there is good intention behind it (Falk et al., 2008, 2003; Fehr & Schmidt, 2006; Rabin, 1993). Fair behavior is one form of social behavior in a whole range of social behaviors: for example, altruism is defined as "unconditional kindness" (Fehr & Schmidt, 2006, p.619); and inequality aversion, that is implementing the fair "fifty-fifty" share, is considered a conditional form of altruism (comp. Fehr & Gächter, 2000; Fehr & Schmidt, 2006). Thus, a person acting in an altruistic way tries to increase the payoff of the other person irrespective of the own payoff. A person acting in an inequality-averse way tries to adjust the payoff of the other person to her own payoff.

The conceptualization of fairness in distributional situations poses important challenges. First, fair behavior can be driven by fundamentally different mechanisms: *preferences*, meaning that an individual in a distributional situation chooses to act in a fair way out of an inner conviction, as well as *social norms*, meaning that an individual decides to act in a fair way in order to comply with a normative standard within a specific group or a specific situation (as, e.g., discussed for the interpretation of laboratory outcomes and dictator game outcomes, respectively, by Levitt & List, 2007; List, 2007).¹ Social norms may also be directly related to individual preferences (Kimbrough & Vostroknutov, 2016). If an individual has a strong preference for norm compliance, she gains utility from adhering to a social norm. In practice, this can mean that an individual that

implements a fair share in a distributional situation does so because either fairness itself matters to her or because she places a high value on fairness norms; this distinction is difficult to measure. Second, what people consider as fair is not universal (Cappelen et al., 2007). Fairness may act on behavioral motives such as egalitarianism, meritocracy, and libertarianism (Cappelen et al., 2007, 2010). Egalitarians consider equal shares in distributional situations as being fair. For them, the more equal the sizes of implemented shares are, the fairer the distribution. Other fairness motives go beyond this approach of equating fairness and equality, and they may accept inequalities in distributional outcomes as being fair. Individuals with meritocratic fairness motives favor performance-dependent distributions, meaning that they consider unequal distributions as fair if inequality is self-inflicted rather than a consequence of bad luck (Cappelen et al., 2007, 2010).² People might also consider deviations from an equal share as fair, if these deviations can be justified by various other reasons, such as efficiency seeking, maximin considerations, or parochialism (Almås et al., 2010; Bernhard et al., 2006; Engelmann & Strobel, 2004). Efficiency seekers accept inequalities in distributional outcomes if the overall payoff is maximized, irrespective of how the total outcome is distributed across individuals (comp., e.g., Almås et al., 2010). Maximin considerations are based on the fairness definition by Rawls: a decision between two allocations is accepted even if unequal under the condition that the payoff of the individual that is the worst off is maximized, irrespective of the better-off individual's outcomes (e.g., Engelmann & Strobel, 2004). Last, parochial individuals prefer members from the own social group meaning that they favor their in-group. Similarly, they may find it fair to implement an unequal distribution to their own advantage between themselves and an out-group member, but not between themselves and an in-group member. Thus, they find it fair to implement equal shares when sharing with an in-group member but regard an advantageous unequal share as fair when sharing with an out-group member (Bernhard et al., 2006). Here, we call these deviations from an equal share inequality acceptance.³

In this survey article, we review the experimental economic literature on fairness and inequality acceptance in children and adolescents, a population that has come into the focus of the economic literature in recent years (e.g., List et al., 2021; Sutter et al., 2019). More specifically, we pursue three aims: We aim to shed light on how fairness and inequality acceptance in distributional situations evolve across different development stages. Therefore, we take a closer look at how children's and adolescents' perception of fairness and inequality acceptance changes from pre-school ages until late adolescence. In this process, we also highlight heterogeneity with respect to characteristics that are commonly discussed in the social preferences literature, such as gender (e.g., Andreoni & Vesterlund, 2001; Kamas & Preston, 2015), SES (e.g., Falk et al., 2021; Kosse et al., 2020), and culture (e.g., Blake et al., 2015a; Henrich et al., 2001). Understanding differences along demographic and socioeconomic profiles is important to obtain a more comprehensive picture of distributional fairness motives in the target population. Moreover, we discuss the role of social norms as one alternative interpretation of distributional decisions of young individuals, thus, contributing to the debate on norms as opposed to preferences as the underlying drivers of behavior (e.g., Breitkopf et al., 2020; Levitt & List, 2007). Last, we shed light on the origins of distributional fairness behaviors, such as family environment or genetics. Importantly, distributional fairness and inequality acceptance in children and adolescents are intensively studied in various disciplines beyond economics, such as, for example, in developmental psychology or cognitive science (e.g., Blake & McAuliffe, 2011; Kanngiesser & Warneken, 2012; Li et al., 2016; LoBue et al., 2011; Moore, 2009; Rizzo et al., 2016; Santamariá-García et al., 2018; Shaw et al., 2014; Shaw & Olson, 2012), and there is a very good reason for combining insights from different disciplines (Gummerum et al., 2008; McAuliffe et al., 2017). Here, we predominantly focus on the results from the

experimental economic literature and thus approach distributional fairness in a rather narrow frame. Fairness and inequality acceptance are broad concepts, that can be conceptualized in different ways and even the empirical research methods to investigate them differ across disciplines (e.g., with respect to incentivization, use of deception). Here, we provide a disciplinary perspective as a first step and leave the integration of perspectives from related disciplines for future research.

Studying children's and adolescents' decision-making in economic contexts is of fundamental interest on its own. It is also important for several other reasons (for recent contributions, see, e.g., Cobb-Clark et al., 2021; List et al., 2021). First, for example, the seminal work of Heckman and colleagues on human capital formation in general and the development of non-cognitive skills before adulthood in particular shows that understanding adult behaviors requires knowledge about behavioral development (e.g., Cunha & Heckman, 2007; Heckman, 2006). That is, social behaviors of children, which are strongly linked to specific non-cognitive skills, might be predictive for social behaviors in later ages that become important in economically relevant contexts, for example, at the workplace. Moreover, social behaviors in childhood are correlated with other adult-age outcomes, such as educational attainment (Caprara et al., 2000). Insights obtained from observing children's and adolescents' decisions in economic games can, thus, be considered informative for our understanding of later life outcomes. Second, studying fairness in children and adolescent samples informs about the development of different fairness motives. Fairness behaviors are influenced by the close family environment at very young ages. But children and adolescents also spend a lot of time in the educational institutions where they learn to interact in social groups. Thus, these institutions may play a critical role in shaping fairness preferences and transmitting fairness norms. Moreover, pro-social behaviors—with fairness being one aspect of pro-sociality—are positively linked to social outcomes, such as classroom climate (Layous et al., 2012) or academic performance (Caprara et al., 2000). Knowing more about children's fairness preferences can help policymakers to design institutions and influence the way individuals interact within institutions. Policies that put a focus on fostering pro-sociality at a young age can contribute to outweighing differentials in opportunities from the beginning (comp. List et al., 2021). From a societal angle, promoting fair behavior among other aspects of pro-sociality helps the internalization of fairness from early on and impacts how individuals are treating each other within a society. Last, economists and policymakers care about early life stage outcomes because of conclusive cost–benefit arguments related to the investment in our youngest. Early investments into human capital are thought to yield higher returns than investments at later development stages or in adulthood and early investments appear to be beneficial in terms of equity, such that human capital investment decisions face an equity-efficiency trade-off in later years but not in early years (e.g., Cunha & Heckman, 2007; Currie, 2001; Heckman, 2006).

Experimental research on economic behaviors and decision-making in children and adolescents has developed strongly over the last 20 years. Since early studies by, for example, Harbaugh and Krause (2000), Harbaugh et al. (2003, 2007), or Murnighan and Saxon (1998), the field has been active in investigating very different aspects of behavior in these age groups (for a recent review on the evolution of economic behaviors in children and adolescents, see Sutter et al., 2019), among them fairness and inequality acceptance. We contribute to the literature by summarizing existing findings on fairness and inequality acceptance, and in doing so, we try to cover the entire age range of childhood and adolescence. Sutter et al. (2019) have raised an important point that is of utmost relevance for our current survey: conducting experiments especially with very young children is subject to fundamental challenges. The design of experiments that can be conducted with children and adolescents in a meaningful way requires very careful consideration of the cognitive and non-cognitive skills at the given age, including limited patience and attention span.

It also requires the adaption of key elements of standard experimental paradigms, such as representation or incentives (details are recently summarized by Brocas & Carrillo, 2020; List et al., 2021). Similarly to Sutter et al. (2019), we concentrate here on the general developmental patterns, rather than conducting comparisons of quantitative outcomes that potentially result from specific differences in the underlying experimental designs.

The remainder of the paper is organized as follows. Section 2 informs about the measurement of fairness and inequality acceptance in children and adolescents. In this section, we provide a more general overview of the standard games and their applications in the economic literature on fairness and inequality acceptance in children and adolescents; we will not be specific about how design parameters need to be adjusted to specific age ranges. Section 3 sheds light on the development of fairness motives during childhood and adolescence. Here, we realize that it might not necessarily be inherent preferences but social norms that drive the observed behaviors. We discuss preferences versus norms as underlying drivers of behavior in Section 4. In Section 5, we discuss origins of fairness and redistribution behaviors. Section 6 concludes.

2 | ELICITING FAIRNESS AND INEQUALITY ACCEPTANCE

Several experimental designs have been tested to investigate fairness and inequality acceptance of children and adolescents.⁴ One of the most popular experimental economic paradigms to elicit non-strategic fairness and inequality acceptance—among other forms of social behaviors such as altruism (e.g., Benenson et al., 2007; Brocas et al., 2017; Bettinger & Slonim, 2006; Harbaugh & Krause, 2000; Kosse et al., 2020; List & Samak, 2013)—is the dictator game. In this two-player game, one player acts as the dictator and the other acts as the receiving opponent. The dictator is entitled to divide a certain endowment between herself and the recipient who (often) remains anonymous, and the recipient has no option to respond to the dictator in any way. The game is not strategic as the recipient can neither reciprocate nor punish the dictator's offer, thus, keeping everything for herself cannot have negative consequences for the dictator. Importantly, the distribution implemented in the game is usually incentivized with real money. A dictator gets paid what she has decided to keep for herself in the dictator game setting and the recipient gets paid out the share that has been distributed to her by the dictator.⁵ Dictator games have been frequently applied to investigate fairness and inequality acceptance in children and adolescents (see, e.g., Almås et al., 2010, 2017; Bauer et al., 2014; Bindra et al., 2020; Chowdhury et al., 2022; Cobo-Reyes et al., 2020; Fehr et al., 2008, 2013; Gummerum et al., 2010; Kogut, 2012; Maggian & Villeval, 2016; Martinsson et al., 2011; Sutter et al., 2018). A second possibility to elicit fairness and inequality acceptance is investigating second-mover behavior in an ultimatum game (Güth et al., 1982). In the ultimatum game, a proposer again can offer part of her initial endowment to a responder. In this case, however, the responder can accept or reject the offer, and a rejection will lead to a zero outcome for both players. Whereas first-mover behavior in this framework can be based on strategic considerations, the behavior of the second-mover is non-strategic and therefore, covered in our survey (comp. Cappelen & Tungodden, 2019). Second-mover behavior in the ultimatum game indicates whether the distribution implemented by the first-mover is considered fair. Ultimatum game behavior, and second-mover behavior in particular, has been investigated frequently in samples of children and adolescents (see, e.g., Blake et al., 2015a; Harbaugh et al., 2003; Murnighan & Saxon, 1998; Sutter, 2007).

As we have indicated in the Introduction, experiments with children to elicit fairness and inequality acceptance pose specific challenges, such as children's potentially limited attention

and lower cognitive skills. This renders the development of an appropriate experimental design that maintains a high level of control as well as sound incentive structures complicated. When applied in children samples, the complexity of experimental set-ups has to be adapted to the respective age; this is an important issue because experiments to elicit fairness and inequality acceptance go beyond simple individual decision-making tasks as they involve one (or even more) interaction partners. Bauer et al. (2014), Fehr et al. (2008), and Martinsson et al. (2011), for example, simplified the dictator game by using binary choices in age-adequate number spaces. Individual treatment as well as age-appropriate design and salience of accounts further support a child's understanding of the experimental set-up (see, e.g., Bauer et al., 2014; Gummerum et al., 2010; Murnighan & Saxon, 1998, for examples of digital experimental set-ups see Bašić et al., 2021; Hermes et al., 2020). Moreover, incentives have to be age-adequate, and gender- or age-specific preferences for certain incentives have to be considered in the design phase (for an overview on issues in experimental design, see List et al., 2021). Young children can be paid directly with small gifts such as sweets (Fehr et al., 2008) or stickers (Gummerum et al., 2010) or tokens that they can exchange for sweets or different kinds of small toys from an experimental gift shop (comp. Bauer et al., 2014; Fehr et al., 2008), while older children are rather paid with an age-adequate amount of money (e.g., Almås et al., 2010; Fehr et al., 2013; Martinsson et al., 2011).

Age-adequate dictator and ultimatum game settings enable the investigation of various fairness motives in children and adolescent samples. Here, we review the conceptualization and measurement of egalitarianism, meritocracy, efficiency seeking, and parochialism among these ages.

Egalitarianism. Egalitarianism or inequality aversion postulates equal splits of an endowment as fair and unequal splits, irrespective of their roots, as unfair (see among others, e.g., Bauer et al., 2014; Fehr et al., 2008, 2013).⁶ In the most standard version of the dictator game, it is common to classify egalitarian allocation decisions, that is, equal splits, as the fair outcome. Cobo-Reyes et al. (2020) and Fehr et al. (2008, 2013), for example, studied egalitarian behavior in children by applying three different versions of a binary dictator game with two players: a pro-social game, an envy game, and a sharing game. In the pro-social game, dictators could decide between an inequality that is advantageous for themselves (in the original game developed by Fehr et al. (2008), this is (1,0)), and an egalitarian outcome (1,1). In the envy game, dictators again decided between the same egalitarian allocation and an allocation (1,2), that is disadvantageous for them. In both of these games increasing the recipient's payoff is costless. The sharing game again opposed the dictator to a decision between establishing an advantageous inequality (2,0), or choosing the egalitarian allocation of (1,1). This time, choosing the egalitarian allocation was costly for the dictator. The combination of the allocation choices in these three games is informative about the dictator's social type: a strongly inequality-averse dictator would consider the egalitarian outcome as fair and choose the equal split in all three games, even if this choice is costly. Bauer et al. (2014) used the same design but enriched the paradigm of Fehr et al. (2008) by implementing a costly envy game. In this game, the decision-maker could choose between the options (1,1) and (2,3). That is, choosing the egalitarian allocation comes at the cost of a foregone higher payoff, which would be associated with disadvantageous inequality for the decision-maker. Choosing the egalitarian option in this game, therefore, signals a strong preference to reduce inequalities. This design was also applied by Chowdhury et al. (2022) in a recent contribution. Similarly, Martinsson et al. (2011) asked participants to make decisions in a series of six binary dictator games with allocations that are more or less equally distributed.⁷ Murnighan and Saxon (1998) applied an ultimatum game setting and investigate how fairness considerations affect second-mover behavior. In their design, most basically, children were asked to allocate an hypothetical endowment that was some amount

of money and some candy between herself and another anonymous child or to respond to an offer proposed by another anonymous child. Egalitarian second-movers in this framework would accept first-mover offers that amount to the equal split of the endowment.

Meritocracy. To elicit meritocratic behaviors in children and adolescents, Almås et al. (2010, 2017) introduced a production phase to the dictator game setting. During the production phase participants completed a real effort task to contribute to a shared dictator game endowment. Thus, the generated endowment, the size of the pie, was dependent on the performance and effort of both, the dictator and the recipient; moreover, the size of the contributions was salient. The setting was designed such that unequal contributions to the endowment were possible and likely. A decision-maker insisting on a meritocratic fairness motive is likely to distribute the generated endowments according to information she obtains about the contributions to the production process. Besides the elicitation of meritocratic fairness motives, the addition of a production phase to the dictator game yields another important advantage: individuals are not gambling with gifted endowments, that is “manna from heaven” (Cappelen et al., 2007, p.818), but they distribute resources that they have generated themselves. This might increase the involvement of the decision-maker in the decision.

Efficiency seeking and maximin considerations. Efficiency concerns motivate individuals to maximize the overall payoff in a dictator game (e.g., Almås et al., 2010; Cappelen et al., 2020; Maggian & Villeval, 2016). In the study of Fehr et al. (2008), efficiency and/or maximin concerns may provide an explanation for the observation of the egalitarian option in the pro-social game and in the sharing game and the disadvantageous option in the envy game. In the study by Maggian and Villeval (2016), an efficiency condition was implemented such that an individual could choose an efficient allocation (5,7) over an equal allocation (5,5). Almås et al. (2010) made efficiency gains in the dictator game setting particularly salient. They measured efficiency seeking concerns by providing the decision-maker with the opportunity to increase overall benefits by scaling the recipient's share with different multipliers. Thus, the points distributed to the recipient are valued two, three, or four times higher, depending on the multiplier, than if they were kept for the self. This enables the decision-maker to increase overall payoffs by increasing the share of the receiver. Sutter et al. (2018) investigated efficiency concerns and maximin considerations as well as selfishness and inequality aversion in children and adolescents. They added a third player, that is a second recipient in the dictator game framework, to their experimental set-up. The set-up comprised three different versions of the dictator game: the taxation game, the envy game, and the rich and poor game.⁸ In each of the games, participating elementary and high-school students who were put into the role of decision-makers were asked to pick one out of three different allocations. Each choice is predictive for the decision-maker's distributional preferences. In the taxation games, the allocations a decision-maker can choose are designed such that the decision-maker would always end up as the middle-income earner making a decision about the spread between the higher and the lower incomes of the two recipients. In the envy games, the decision-maker again earns the middle income. Reducing the income of the high-income recipient, however, goes together with reducing the payoff of the low-income recipient. In the rich and poor games, the decision-maker either ends up being the richest, the poorest, or the middle-income earner. The different games are designed in a way that a distinction between inequality aversion, efficiency seeking, and maximin considerations is possible. A decision-maker who is, for example, concerned with efficiency will choose the option with the highest overall payoff. A decision-maker whose choice behavior is driven by inequality aversion will choose the option with the smallest total distance between her own payoff and the payoff of the two other players or her share of the total group payoff.

Parochialism. Inequality acceptance might also relate to the group a decision-maker is or feels affiliated to. More specifically, parochial decision-makers may accept advantageous inequalities if the respective other individual belongs to another group but at the same time, they may dislike advantageous inequalities if the recipient belongs to their own group. In-group conditions have been studied by, for example, Angerer et al. (2017), Bindra et al. (2020), Cobo-Reyes et al. (2020), Fehr et al. (2008, 2013), and Kogut (2012).⁹ In a dictator game setting, parochial decision-makers implement an unequal distribution keeping the larger share for themselves if the recipient is part of the out-group. In- and out-group conditions are implemented by revealing group affiliation (but not the whole identity) of the recipient to the dictator. Fehr et al. (2008, 2013), for example, matched 3–8-year-olds and 8–17-year-olds as dictators either with recipients from the same class (in-group condition) or with recipients from the same grade level in another educational institution (out-group condition). Similarly, Kogut (2012) matched children with children from another class in the out-group conditions, but out-groups in her study nevertheless went to the same school. Similar to the studies of Fehr and colleagues, Bindra et al. (2020) used a child's institution as one distinction criterion in a first game in their study. Note, however, that the distinction between in- and out-group might not be restricted to the social group specified by the institution, but can be linked to other characteristics such as gender, language group, or ethnicity (Angerer et al., 2017; Bindra et al., 2020; Cobo-Reyes et al., 2020).¹⁰ In a second game implemented in their study, Bindra et al. (2020) used gender as the distinction criteria, that is, individuals of the same sex are in the in-group and individuals of different sex are in the out-group. Angerer et al. (2017), in contrast, defined group affiliation based on language and run their study in the Italian city of Meran that is divided into German- and Italian-speaking inhabitants. They use same language speakers as the in-group and other language speakers as the out-group, respectively. Cobo-Reyes et al. (2020) distinguished by ethnic origin. Thus, in their setting, in- and out-groups depended on identification on a broader collective level instead of interpersonal relationships. In the in-group condition, dictators were matched with a recipient who shares the same ethnic origin and in the out-group condition, dictators were matched with a recipient belonging to a different ethnicity.

Overall, we can conclude from the literature that appropriately modified dictator and ultimatum games can be conducted with children and adolescents, and dictator decisions as well as responder decisions in ultimatum games provide meaningful information about children's fairness and inequality acceptance in nonstrategic decision situations. In particular, these designs avoid confounds that might evolve in more complex strategic settings. In the following, we will discuss the development of fairness and inequality acceptance across developmental stages.

3 | DEVELOPMENT OF FAIRNESS AND REDISTRIBUTION BEHAVIORS ACROSS CHILDHOOD AND ADOLESCENCE

Behavioral motives for implementing allocations that we classify under the above-mentioned definitions of fairness and inequality acceptance develop from early ages on. One strand of the existing literature focuses on depicting the development of distributional behaviors in the time period between early childhood and late adolescence (see, e.g., Almås et al., 2010; Bauer et al., 2014; Bindra et al., 2020; Cobo-Reyes et al., 2020; Fehr et al., 2008, 2013; Gummerum et al., 2010; Kogut, 2012; Maggian & Villeval, 2016; Martinsson et al., 2011; Sutter et al., 2018). A closer look reveals considerable heterogeneity in the development of fairness motives with age, and the development differs by gender as well as socioeconomic and cultural background (see, e.g., Croson and Gneezy, 2009, for a survey on gender differences in economic experiments in more general or Engel, 2011,

for a discussion of heterogeneity in dictator game results). We review the developmental patterns by fairness motive and summarize all studies that we discuss in this section in Table 1.

3.1 | General pattern of development by age

Egalitarianism. Egalitarianism seems to develop from early childhood on. Studying the distribution of social types across different age categories in children, Fehr et al. (2008) conclude that inequality aversion strongly increases in children of ages 3–8. In their binary dictator game set-up, children of ages 3–4 were more likely to favor allocations that increase their own payoff irrespective of the recipient's payoff and thus engage in selfish behaviors. At ages 3–4, only 21% of the children in their sample acted on egalitarian motives. In children of ages 7–8, egalitarianism seemed to be the dominating fairness motive. In this age group, 60% of the children sought to eliminate inequalities by implementing equal splits, of which half were even willing to sacrifice their own resources for the sake of egalitarian outcomes. This pattern is supported by other research, as, for example, by the study of Gummerum et al. (2010), who also find that the oldest children aged 5 in their UK sample implement an egalitarian share more often than younger children aged 3 or 4. The early development of preferences for egalitarian outcomes—way before children learn to express fair shares in mathematical terms—points to an “egalitarian instinct” (Fehr et al., 2008, p.1082) in humans. The increase in egalitarian behavior during childhood must, however, be seen in the light of the socialization process children are undergoing (as, e.g., discussed by Fehr et al., 2008, also see Sections 3 and 4).¹¹ Extending their earlier study with evidence from the age range 8–17, thus later childhood and adolescence, Fehr et al. (2013) conclude that egalitarianism seems to be the most prevalent fairness motive among 8–11-year-olds. It peaks in these ages and diminishes beyond. Several authors (see, e.g., Almås et al., 2010; Bauer et al., 2014; Cobo-Reyes et al., 2020; Maggian & Villeval, 2016; Martinsson et al., 2011; Murnighan & Saxon, 1998; Sutter et al., 2018) report comparable results. Maggian and Villeval (2016), in their sample of 7–14-year-olds, find in a binary dictator game that, with time, children increasingly choose an egalitarian alternative over an option that favors themselves at the expense of their opponent, indicating that selfishness decreases and egalitarianism increases. In their sample of children aged 4–12, Bauer et al. (2014) find that egalitarianism increased in the age in their costly and their costless pro-social game. In the costless pro-social game—that is, when choosing the egalitarian outcome does not lead to a reduction in own payoffs—shares of children choosing this option increased from 49% among 4–5-year-old children to 91% among 10–12-year-old children. In the costly pro-social game—that is, when choosing the egalitarian outcome requires children to give up parts of their own wealth—shares increased from 22% in the youngest to 67% in the oldest cohort. These results support a strong preference for the implementation of equal shares. Compared to the findings of Fehr et al. (2008) who report an increase until the age of 8 and Fehr et al. (2013) who report a decline in egalitarian choices in older children in the costless envy game, the data collected by Bauer et al. (2014) show a similar pattern, albeit a slightly earlier peak of egalitarianism. They find that the share of egalitarian choices increased until the age of 6–7, staying steady or slightly decreasing afterwards. Similarly, Kogut (2012) in their substudy sample of kindergarteners, second- and fourth-grade children, that is, children aged 5–10, find that shares of equal splitters in the dictator game rise, however, insignificantly, between kindergarten and second grade; and they fall again among fourth graders. Cobo-Reyes et al. (2020), in their sample of 9–67-year-old individuals living in Spain, report decreasing shares beyond the age of 9.¹² Almås et al. (2010), in their sample of Norwegian 5th to 13th graders, Martinsson et al. (2011), in their sample of 10–15-year-old Aus-

TABLE 1 Development of fairness behaviors in children and adolescents

Authors	Sample		Country	Task	Results		Gender	SES	Culture	Motives
	Size	Age			Age	Age				
Murnighan and Saxon (1998)	122 ^a	5–12	US	UG	Egalitarianism particularly prevalent in grade 3	Egalitarianism				Egalitarianism
Fehr et al. (2008)	229	3–8	CH	DG, in- and out-group	Egalitarianism increases in age, parochialism develops differently in the pro-social, the sharing and the envy game	Egalitarianism increases in age, parochialism develops differently in the pro-social, the sharing and the envy game	Boys more parochial			Egalitarianism, parochialism
Almås et al. (2010)	486	Approx 10–18 ^b	NO	DG	Egalitarianism decreases, efficiency seeking and meritocracy increase in age onwards	Egalitarianism decreases, efficiency seeking and meritocracy increase in age onwards	Boys more efficiency seeking 9th grade onwards			Egalitarianism, efficiency seeking, meritocracy
Gummerum et al. (2010)	77	3–5	UK	DG	Egalitarianism increases in age	Egalitarianism increases in age	Girls more egalitarian			Egalitarianism
Martinsson et al. (2011)	650	10–15	AU, SE	DG	Egalitarianism decreases in age	Egalitarianism decreases in age	Girls more egalitarian		Differences in share of egalitarians between Austria and Sweden	Egalitarianism

(Continues)

TABLE 1 (Continued)

Authors	Sample		Task		Results		Gender	SES	Culture	Motives
	Size	Age	Country		Age					
Kogut (2012)	184 ^a	5–10	IL	DG	Egalitarianism (insignificantly) increases until age 6 and decreases afterwards, no evidence for parochialism					Egalitarianism, parochialism
Fehr et al. (2013)	717	8–17	AU	DG, in- and out-group	Egalitarianism decreases, parochialism prevalent in adolescence	Girls more egalitarian, boys more efficiency seeking, no gender effect in parochialism				Egalitarianism, efficiency seeking, parochialism
Bauer et al. (2014)	275	4–12	CZ	DG	Egalitarianism increases in the costless and in the costly pro-social game in age			Low SES less likely to share		Egalitarianism
Blake et al. (2015a)	866	4–15	CA, IN, MX, PE, SN, UG, USA	inequity game (comp. UG)	Emergence of disadvantageous inequality aversion earlier than emergence of advantageous inequality aversion				Advantageous inequality aversion only in Westernized societies	Egalitarianism

(Continues)

TABLE 1 (Continued)

Authors	Sample Size	Age	Country	Task	Results Age	Gender	SES	Culture	Motives
Maggian and Vilval (2016)	637	7–14	IT	DG	Selfishness decreases for the sake of egalitarianism, efficiency seeking increases in age	Girls more egalitarian, small persistent gender gap in efficiency seeking			Egalitarianism, efficiency seeking
Almå et al. (2017)	524	14–15	NO	DG, spectator	Meritocracy prevalent in adolescence		Low SES more egalitarian if merits are unequal		Meritocracy
Angerer et al. (2017)	824	6–11	IT	DG, in- and out-group, spectator	Parochialism prevalent in middle childhood	Boys more parochial			Parochialism
Sutter et al. (2018)	883	8–17	AU	DG, spectator	Egalitarianism decreases in age, efficiency seeking and maximin prevalent in adolescence	Girls more maximin oriented, boys more efficiency seeking			Egalitarianism, efficiency seeking, maximin
Bindra et al. (2020)	142	3–6	AU	DG, in- and out-group, spectator	Parochialism prevalent from age 5 onwards	No gender effect in parochialism			Parochialism
Cobo-Reyes et al. (2020)	665	9–67	ES	DG, in- and out-group	U-shaped egalitarianism, no evidence for parochialism	Girls more egalitarian			Egalitarianism, parochialism

Abbreviations: DG, dictator game; UG, ultimatum game.

^aSubstudy.

^bGrade 5 to grade 13.

trian and Swedish adolescents, as well as Sutter et al. (2018), in their sample of 8–17-year-olds, report decreasing shares of egalitarians across age groups.¹³ Murnighan and Saxon (1998), in a substudy, investigated second-mover behavior in ultimatum games in kindergarteners aged 5–6, third graders aged 9, and sixth graders aged 12 years old from the United States. They find that 13 of 40 third graders rejected the offer of unequal amounts of candies even if the offer was advantageous for them. In line with the results reported above, we conclude that children are particularly egalitarian in these ages. Taken together, the evidence above suggests that egalitarianism seems to be increasing across childhood ages, but vanishes in adolescence. Then, inequality acceptance emerges, increasing the implementation of unequal shares in allocation tasks.

Meritocracy. Older children might start caring about whether payoffs are deserved, thus, starting to act in a meritocratic way. The findings of Almås et al. (2010) suggest that whereas differences in production do not seem to play a role in the 5th grade, the share of meritocrats steadily rises across age categories, mounting to 43% of all 13th graders. In their sample of 14–15-year-old adolescents, Almås et al. (2017) also find that the predominant part of their sample view unequal distributions as fair if this inequality mirrors differences in merit. To interpret these findings and putting them into perspective, we argue that the development of meritocracy in adolescent ages might be influenced by changes in salience of merits in different grade levels. In lower grade levels, school is more playful and scholastic performance is less important and less salient, but both salience and importance increase with higher grade levels. Thus, differentials in production may become more important the older children are, and this may, directly or indirectly, affect their fairness motives and justify get-what-you-deserve allocations.

Efficiency seeking and maximin considerations. Efficiency seeking motives have also been found to emerge in adolescence as shares of allocations that yield higher overall payoffs are chosen more and more frequently during the transition to adulthood: for the sake of implementing an efficient outcome, individuals even seem to be willing to tolerate inequalities that are disadvantageous for themselves (e.g., Almås et al., 2010; Fehr et al., 2013). Almås et al. (2010) find that acting on efficiency seeking motives—that is, increasing overall payoffs by shifting a higher share to the recipient, for whom the same outcome is more valuable because it is scaled by a multiplier—is more prevalent among higher grade compared to lower grade levels. This has also been documented by Maggian and Villeval (2016) who find that efficiency concerns increase in 7–14-year-olds and by Sutter et al. (2018) who find in their sample of ages 8–17 that efficiency seeking and maximin considerations become dominant in adolescent ages compared to behaviors that are driven by inequality aversion. One possible interpretation of this finding, that we like to put forward, might be that in older ages individuals become more and more aware of social debates such as economic growth or redistribution of wealth and start to incorporate such aspects into their own fairness judgments. Recent evidence raises the important point that the value of the distributed resource might matter: Choshen-Hillel et al. (2020) collected data showing that already at age 6–8, children trade off equity and efficiency concerns depending on how valuable the traded resource is.

Parochialism. The development of parochial tendencies during childhood and adolescence is less clear. Fehr et al. (2008) find evidence for parochialism in their sample of 3–8-year olds. In these ages, children increasingly seemed to favor their in-group and this pattern was most striking in the pro-social and in the sharing game. In the pro-social game, with increasing the recipient's payoff being costless, children seemed to be more likely to choose the egalitarian allocation over an unequal allocation that is advantageous to them when the recipient was a member of the in-group. In the sharing game, when increasing the recipient's payoff was costly, parochialism seemingly developed in age. Whereas children constantly increased the share of egalitarian choices when

the recipient was part of the in-group, they decreased egalitarian shares when the recipient was part of the out-group with age. In-group favoritism in this game seemed to be most prevalent in the ages 7–8. In the envy game, in-group favoritism was most prevalent already in the ages 5–6, thus, earlier than in the sharing game, but diminished in the age group 7–8. These results are corroborated by Bindra et al. (2020) who also report significant evidence for in-group favoritism in their middle age and in their oldest cohort, but not in the youngest cohort, in their sample of pre-school-aged children. Strikingly, their results are independent of whether the in- and out-groups are defined based on gender or on pre-school affiliation, suggesting that in-group favoritism seems to be a phenomenon that is not specifically related to the domain of either gender or institution. While Angerer et al. (2017) did not explicitly investigate the development of parochial behavior over time, their work reveals significant evidence for in-group favoritism among 6–11-year-old children in Italy. This lends further support to the assumption that parochialism is already present in primary school ages. The findings of Fehr et al. (2013) suggest that parochialism develops in early adolescence. In the pro-social game, individuals were more likely to implement equal splits from age 12 onwards when the recipient was a member of their in-group. In the envy game, the egalitarian allocation was increasingly more often chosen if the opponent was associated with the out-group. Individuals' willingness to accept disadvantageous allocations in the in-group seems to increase in age being significant in the oldest age cohorts. In the sharing game, equal sharing was generally more prevalent in the in-group condition; this effect was significant from the ages 10–11 onwards. The emergence of parochial behaviors at different ages, however, might be amplified by very different internal and external factors. First, parochialism is likely to be shaped by institutional surroundings (as discussed, e.g., by Fehr et al., 2008). The clustering of children and adolescents in pre-school groups or classes, where they spend a significant amount of time within the same peer group, constitutes an important institutional condition, potentially creating a sentiment of in- and out-group. Thus, getting into pre-school and moving from pre-school to primary school or from primary school to secondary school might lead to growing parochialism in each stage as a result of becoming part of a distinct social group and deepening social ties within these groups (comp. Fehr et al., 2013). We aim to add that the emergence of group biases might be a result of a shift of social reference groups and the evolving individual dynamics. During childhood, some children might be still coined to a larger extent by their family environments than by the children in their institutional surroundings. Adolescents, who increasingly detach from their families, oftentimes identify to a very strong degree with their social group (for an extensive overview on peer relationships, see Brown, 2004), making parochial tendencies more evident during adolescence.¹⁴ To explain their null findings for the youngest cohort, Bindra et al. (2020) argue that very young children, however, might find the concepts of in-groups and out-groups in experimental settings too abstract. A potential reason for other null results (Cobo-Reyes et al., 2020; Kogut, 2012) might be that in- and out-groups have been more vaguely defined in these compared to other studies, as suggested by, for example, Cobo-Reyes et al. (2020).

Overall, the literature suggests that different motives for fairness and inequality acceptance behaviors are prevalent at different ages. Egalitarianism appears to increase between late kindergarten and primary school age but becomes less important in adolescence. In late childhood or early adolescence, respectively, individuals increasingly start to consider unequal distributions as fair and inequality acceptance increases. In particular, individuals seem to become more efficiency seeking and maximin considerations seem to play an increasingly important role. Likewise, meritocratic behavioral motives also seem to develop during adolescence. Concerning the development of parochial behaviors, the existing evidence from the literature is less clear-cut, suggesting that there is not a single developmental stage during which individuals develop

a strong favoritism towards the in-group. Rather, parochialism probably emerges in different developmental stages, and its development could be driven by individual and environmental factors.

3.2 | Heterogeneities

Studying differences in the development of fairness behaviors between different groups of children sheds light on systematic individual heterogeneity. In this survey, we review heterogeneities with respect to important individual characteristics such as gender, SES, and cultural background. We conclude that there is heterogeneity in fairness motives related to these characteristics; however, so far, evidence particularly with regard to SES and cultural background remains scarce.

Gender. In their survey on economic behaviors in children and adolescents, Sutter et al. (2019) summarize that in individual decision-making tasks, females are more likely to make decisions that are along the lines of egalitarians, whereas males are more efficiency seeking. This is supported by Gummerum et al. (2010) who find in their pre-school-aged sample that girls seemed to be more egalitarian than boys. Also, Fehr et al. (2013) report gender differences in the occurrence of the egalitarian type, with girls between 11 and 17 being significantly more egalitarian than boys and this differential rising with age. Similarly, Cobo-Reyes et al. (2020) report that females are more likely to be classified as egalitarian than men across all age groups between 9 and 67, and that this tendency increases with age. The findings of Martinsson et al. (2011) and Maggian and Villeval (2016) also point into the same direction: in their 10–15-year-aged sample and their 7–14-year-aged sample, respectively, they find that girls overall tended to be more egalitarian than boys. Almås et al. (2010) who focused on meritocracy and efficiency considerations detect gender differences in efficiency seeking but not in the development of meritocracy, the latter finding being corroborated by Almås et al. (2017). In particular, they find that males weigh efficiency stronger than females from grade level 9 onwards. Similarly, Fehr et al. (2013) and Sutter et al. (2018) report that the efficiency seeking motive is more prevalent in boys than in girls and also Maggian and Villeval (2016) find a small but persistent gender gap in efficiency seeking. In their sample, Sutter et al. (2018) estimate probabilities of being of a certain social type and find that boys were more concerned with efficiency than girls, whereas girls were more maximin oriented. More so, efficiency seeking in boys and maximin considerations in girls became more and more dominant with time. Sutter et al. (2018) argue that individuals could carry primary and secondary motivations to implement a certain distribution in their experimental set-up, suggesting that an individual's behavior might be driven by more than one motive. In particular, their findings show that girls who primarily conducted maximin considerations, secondarily cared about efficiency or equality, and boys who primarily cared about efficiency secondarily cared either about only their own payoff or are also concerned with the payoff of the worst off. The evidence on gender differences in parochial tendencies is mixed and more evidence is needed to draw a clear picture. Fehr et al. (2008) find parochial tendencies in 3–8-year-old boys, but not in girls in the envy game. They provide an explanation based on males' higher prevalence of being involved in intergroup conflict during evolutionary history. Bindra et al. (2020), however, find gender not to be predictive for in-group favoritism in more general in their sample of pre-school children. Whereas in the study of Fehr et al. (2008), the decision-maker was a stake-holder herself, she acted as a spectator in the study of Bindra et al. (2020), leading us to argue that gender effects could be sensitive to the role of the decision-making subject. In middle childhood, however, gender effects in parochial tendencies seem to become prevalent even if the decision-maker does not have own stakes in the

decision. Angerer et al. (2017), who also put the decision-maker in the role of a spectator, show that males were favoring their own-language group to a stronger extent than females in their sample of 6–11-year-old school children, indicating that gender effects in parochialism might evolve later when own stakes are not involved. This interpretation is supported by Bindra et al. (2020) who also conclude that parochialism might develop in early school ages. In their sample of 8–17-year-olds, Fehr et al. (2013) identify parochial tendencies that increase across adolescent ages in the form of in-group effects in the pro-social, the envy, as well as the sharing game, for both, males and females. This leads us to put forward that during adolescence, gender differences in parochialism that were observed in the younger sample of Fehr et al. (2008) might be overcome, possibly due to relatively gender-neutral socialization of boys and girls in Western societies.

SES. Only few papers have studied explicitly whether the fairness motives that we discuss in this survey differ along SES of children and adolescents. Bauer et al. (2014) as well as Almås et al. (2017) have, however, investigated extensively whether fairness behaviors depend on family background and if so how. In their sample of 4–12-year-old children, Bauer et al. (2014) find that children from low-educated parents were less likely to share their resources in the costly pro-social game, although, from their data on all four binary dictator games, they could not conclude that children of low SES parents are overall less egalitarian. Almås et al. (2017) explicitly considered the role of family background in an adolescent sample of 14–15-year-old individuals. They find that adolescents from low SES families and adolescents from medium/high SES families distributed similar shares of an endowment to another individual in a dictator game framework if the endowment is not dependent on merits, thus placing similar weights on fairness. If the endowment is merit-dependent, however, adolescents from a low SES family acting as spectators seem to act in a much more egalitarian way than children from medium or high SES families. In other words, this may suggest that children from medium or high SES families are more meritocratic than children from low SES families.

Cultural background. Evidence on cultural differences in fairness and inequality acceptance is also quite rare until today. Table 1 clearly shows that most studies have been conducted in Western societies. Martinsson et al. (2011), for example, conducted their experiment in two European countries, Austria and Sweden. Comparing the two countries, they find Swedish adolescents to be less inequality-averse than Austrian adolescents suggesting that fairness behavior could be shaped by the cultural surroundings. The only study—that we are aware of—that compares fairness behaviors in Western and Non-Western societies is the study conducted by Blake et al. (2015a). They investigated differences in inequity aversion among children and adolescents in seven Western and Non-Western societies. Their results show that disadvantageous inequality aversion increased with age in all societies suggesting that disadvantageous inequality aversion is a general tendency and that cultural background may only influence its developmental trajectory. More specifically, advantageous inequality aversion seemed to emerge only in later years and only in the United States and Canada, the two Western societies in the sample, as well as in Uganda, where children were sampled from Westernized schools. They reason that Western societies often establish equalization policies and that children in these societies, therefore, might feel more pressure to follow the equality norm. Similarly, Almås et al. (2017) argue that their results on gender and SES characteristics (see above) could be driven by the fact that participants in their study are predominantly Norwegian citizens, thus being raised in a society that is used to high degrees of equalization.

In summary, we conclude that children's and adolescents' decision-making behavior in distributional situations clearly depends on individual characteristics such as gender and the social environment. Girls seem to be more egalitarian than boys whereas boys view the overall pay-off as decisive when judging about fairness in distributional situations. Regarding differences

in fairness motives along socioeconomic characteristics, first evidence shows that meritocratic fairness motives are more prevalent among children from high SES families whereas egalitarian motives seem to determine fairness behaviors of children from both, high SES and low SES families. This suggests that SES might not be associated with whether children are fair per se, but rather with the motives that can underlie fairness-related decisions. Moreover, there is suggestive evidence that cultural background could play a role for the development of fairness and inequality acceptance because different fairness norms might be prevailing in different societies. In particular, more evidence comparing the development of fairness motives between Western and Non-Western societies is needed to draw a more comprehensive picture of cultural influences on fairness and inequality acceptance and this could challenge the generalizability of results that are derived from Western society samples.

4 | SOCIAL NORMS AS DRIVERS OF FAIRNESS BEHAVIORS

The relationship between cultural background and individual fairness behaviors discussed in the previous section sparks a discussion about the question whether children's and adolescents' fairness behaviors reveal fairness preferences or whether they are coined by external factors such as social norms. Disentangling whether an individual implements a certain allocation in the dictator game because she is guided by social norms, or by her individual preference for fairness, or even implements a fair share because of having a preference for norm-compliance is a complex challenge (comp., e.g., Kimbrough & Vostroknutov, 2016; Krupka & Weber, 2013; Levitt & List, 2007; List, 2007), which we will not be able to address in the context of this survey. Rather, we aim to sensitize for the fact that, beyond revealed preferences for fairness, other drivers might possibly determine the observed fairness behavior, and one of them might be social norms.

Social norms define how individuals do or should behave in a certain situation, or according to certain social standards (Bicchieri, 2005). Importantly, social norms are common knowledge within a social group and a sufficiently large share of individuals in the group has implicitly agreed on their appropriateness and is willing to enforce the norm by sanctioning norm violations. In the context of giving in dictator games, this implies that whether a distributive decision is judged as fair or not, does not only depend on the decision outcome itself, but also on the normative standard in the social group of the decision-maker.¹⁵ In dictator game frameworks, sharing “fifty-fifty” has been found to be the common social norm (comp., e.g., Krupka & Weber, 2013).¹⁶

Children seem to be aware of social norms although they do not necessarily behave in a norm-compliant way, and children's norm-compliance develops with age (Blake et al., 2015b; Kogut, 2012; Smith et al., 2013). Moreover, already at young ages, children enforce social fairness norms (Jordan et al., 2014; McAuliffe et al., 2015). Blake et al. (2015b) find that while most children in their sample of 6–13-year-olds knew about the appealing social norm, some failed to behave accordingly—which they interpret as a consequence of low self-regulation ability. Smith et al. (2013), on the other hand, find no evidence for lacking willpower to be the reason for less normative behaviors in young children. Whereas only 7–8-year-old children in their sample predicted that they would follow the norm of equal splitting in a dictator game, 3–6-year-old children predicted that they would deviate from this norm. Based on these results, the authors conclude that the weight of social norms in children's decision-making increases in age. To investigate normative behavior, Kogut (2012) compared sharing behaviors in dictator and ultimatum games. Similar to the findings of Smith et al. (2013), she finds that children at the age of 5–6 were already aware of social norms but did not feel the obligation to comply with the norm. Children aged 7–8 in her

sample felt obliged to follow the social norm of sharing, but were overall less happy about the outcome than 9–10-year-old norm-compliers. Kogut (2012) suggests that her findings show that norm internalization takes some time to develop across childhood ages.

Social fairness norms are formed in social environments, such as, for example, educational institutions. Cappelen et al. (2020) show that children who attended a pre-school became more egalitarian some years later compared to children who were not participating in the pre-school program. The authors discuss the effects of early-childhood education with respect to social preferences, but they also put forward that the extent to which observed behaviors are shaped by the steady internalization of social norms learned within the program is subject to discussion. We suggest that internalization might play a role here again, as educational institutions impact the transmission of values (also comp. John & Thomsen, 2015) and can therefore promote learning about social fairness norms, for example, by actively addressing the egalitarian norm of sharing “fifty-fifty” and by training norm-compliance in interactions with teachers and peers. John and Thomsen (2015) investigated differences in dictator-giving behaviors between an academic and a non-academic school track. According to their results, children from the academic school track tended to be more egalitarian than children from the non-academic track, leading them to argue that dictator game giving is impacted by the school environment. More specifically, they argue that the variation stems from different sources that all contribute to school environment, one of them being peer group-specific norms. Similarly, Eckel et al. (2011) argue that peer pressure and desire for social acceptability increase across adolescence and may therefore also constitute an another important benchmark for norm adherence in these ages.

Strong evidence for norm-driven behavior already among young children stems from experimental designs in which children act as third parties and can use their means to enforce social norms. Studies by Jordan et al. (2014) and McAuliffe et al. (2015), for example, show that children at the age of 6–8 years were willing to sacrifice own resources to punish unfair behavior that is not even directed towards themselves. Bašić et al. (2020) studied costly enforcement of an egalitarian norm in 9–18-year-old individuals. Overall, they find that third-party punishment is prevalent across all age groups but egalitarian norm enforcement fully unfolds until the age of 13–14. They also reason that children might indeed care about the egalitarian norm already in the youngest age cohort, but might be still driven by other factors such as spitefulness or preferences for being ahead until early adolescence (comp. Jordan et al., 2014; McAuliffe et al., 2015), thus, complementing the literature on norm development during childhood and adolescence.

Overall, the existing literature suggests that already at young ages, children are aware of social norms and increasingly punish norm-violating behavior. However, especially very young children might face problems adhering to social norms due to a lack of self-regulation or simply because they put less weight on normative behaviors. At the same time, social forces to adhere to social norms are still lower. As children spend time in educational institutions, they learn about social norms and practice social norm adherence in their interactions with teachers and peers. In adolescent ages, individuals are oriented more towards their social groups and, thus, peer pressure and desire for social acceptability might further contribute to norm compliance. Regarding the question about the extent to which fairness behaviors might be driven by norms or preferences, these findings suggest that the relative importance of norms for fairness behavior as opposed to preferences increases with age. A more thorough understanding of the role of social norms in children's and adolescents' fairness behaviors can potentially be gained by further disentangling different developmental mechanisms that prevail at certain ages.

5 | THE ROOTS OF FAIRNESS BEHAVIORS

The previous sections have clearly demonstrated that children increasingly care about fairness and that fairness behaviors and inequality acceptance can be influenced by various drivers, such as preferences and social norms. Educational institutions, for example, play an important role in directly shaping fairness norms by teaching fairness motives in class or by enforcing behaviors that comply with a fairness norm (comp. the results of Cappelen et al., 2020). Similarly, peers are also deemed to influence the development of fairness behaviors (Eisenberg et al., 2015). In this section, we discuss the role of the family for the development of fairness, because studies have shown that there is an intergenerational transmission channel that can be directly linked to a child's family. Specifically, we here discuss two potential channels how family environments eventually influence social behaviors: informal learning, for example, by being a good role model, and the genetic transmission of fairness behaviors.

5.1 | Family and social background

A few studies show that social surrounding is associated with pro-social behaviors of children and adolescents (e.g., Benenson et al., 2007; Falk et al., 2021; Kosse et al., 2020). As we have discussed in Section 3.2., the fairness motives an individual possesses might be associated with SES (Almås et al., 2017; Bauer et al., 2014). More specifically, it seems plausible that the differences in fairness and inequality acceptance that are associated with a child's family background might be explained by differences in the social environment that children are facing in high or low SES families (for a relatively recent review from the field of psychology, see Eisenberg et al., 2015). *Social environment* refers to the social context in that children and adolescents are active, that is their family, but also individuals outside their family, such as their peers or other closely related individuals.

Correspondingly, family environment, being reflected by SES, might be decisive for the way pro-sociality is promoted in children (see, e.g., Falk et al., 2021; Kosse et al., 2020).¹⁷ Kosse et al. (2020) provide causal evidence that a pro-social environment positively influences pro-sociality in children. They randomized children from low SES families into a mentoring program that provided these children with a mentor for 1 year. They show that spending time with a mentor that is characterized as being highly pro-social closed the SES gap in pro-sociality. This result highlights the importance of pro-social role models that might be the parents themselves but also some other closely related person such as a mentor, and various forms of intensive pro-social interaction. Pro-social role models give children the opportunity to mimic pro-social behavior and thereby internalize pro-social attitudes and provide important feedback opportunities for the child amplifying the consolidation of pro-social attitudes (comp. results from psychological literature discussed in Kosse et al., 2020). In a related study, Falk et al. (2021) used data from parents and their children on the household environment, that is, on SES, parenting style and parental investments, as well as on economic preferences and IQ. One of their main conclusions is that differences in social preferences are associated with SES, which again is reflected in parental inputs, respectively. They argue that parental education may be associated with better knowledge about the impacts of parental behaviors on their children's development. This may mean that, compared to low SES parents, high SES parents might put more time into fostering informal learning by being a good role model and actively transmitting positive values through their own actions. In the context of fairness behaviors and inequality acceptance, this could be, for example, giving and sharing in distribu-

tive situations or fairness in more general. We also speculate that high SES parents might be more likely to discuss socially relevant topics with their children and thus address social debates related to fairness or redistribution policies in the family. Falk et al. (2021) argue that a higher household income might contribute to a more positive parenting style as parents can redistribute more of their resources to children as rewards. In low SES families, fewer resources can be redistributed to and among children; Bauer et al. (2014) speculate that owning less may make children less likely to share. They find that parents from low SES families found it less important to foster unselfish behaviors in their children, which leads us to conclude that they might care less about being a good role model in terms of sharing. Although the findings of Almås et al. (2017) do not show that children from low SES families are placing less weight on fairness in general, they suggest that SES might be associated with the underlying fairness motives. Almås et al. (2017) find that adolescents from medium or high SES families seemed to act less egalitarian in distributive decisions in which merits play a role. One interpretation that we aim to put forward is that children being raised in higher SES households might learn at home that effort and performance should be rewarded fairly as this is what their parents might have experienced on their own career paths, being in line with the role model hypothesis. Cappelen et al. (2020) provide causal evidence that parenting impacts children's fairness behaviors. They show that incentivized participation in a parenting program increases efficiency seeking in the target children and thus alters children's fairness behaviors. In line with Heckman (2007), these findings also indicate the importance of parental investments for the development of children's preferences. By studying social preferences (among other forms of economic preferences) in a developing country context, Chowdhury et al. (2022) extend the findings discussed above. Their data allow for the possibility to investigate the intergenerational transmission of both parents' economic preferences and indicate significant evidence of transmission for father and mother. In contrast to Falk et al. (2021), they find almost no evidence for a relation between SES and children's economic preferences when considering economic preferences in isolation and keeping both parents' preferences in the regression. By constructing family clusters based on preference bundles, they, however, were able to identify an association between SES and preference bundles. With regard to egalitarianism, and thus particularly interesting for our survey, Chowdhury et al. (2022) do not find differences between the clusters. This may confirm the evidence by Almås et al. (2017) showing high and low SES put similar weights on fairness.

Overall, the social environment plays an important role in shaping pro-sociality, which, for example, is reflected in fairness behaviors and inequality acceptance. In that respect, parents, or some other closely related caregiving person, acting as pro-social role models, influence the development of social attitudes of children and adolescents by their own actions. Thus, children can learn informally from their parents or caregivers to act pro-socially, for example, by mimicking their behaviors. In adolescence, social acceptance is an important driver of an individual's behavior. Interacting in the context of a pro-social peer group can, therefore, promote pro-social behaviors in these ages. Together, social disparities and peer group behavior may eventually contribute to differences in fairness motives and the degree of inequality acceptance that are instilled in children from early on.

5.2 | Genetic origins

As outlined above, beyond the social and family environment (which, in the discussion about the origins of traits and behaviors, is often referred to as "nurture"), the genetic make-up (often referred to as "nature") could also play an important role in shaping fairness behaviors. For a

number of reasons, pinpointing the genetic origins is quite difficult, however, as it either requires variation in individual genetic backgrounds that is independent of the social or family environment or large samples of individuals with a very precise measurement of their genetic make-ups. Correspondingly, there exist two approaches: quantitative genetic studies, involving, for example, twins and adoptees, and molecular genetic studies, involving detailed genetic information on the individuals under study. So far, these studies have been conducted only with older samples, but to the extent that they inform us about the genetic origins of fairness behaviors, we provide a brief summary of the applied methods and the results here. Cesarini et al. (2009) present data from a sample of Swedish twin pairs that played a dictator game, in which they had to distribute an endowment between themselves and a charity. While this is a measure for giving behavior (rather than fairness behavior), we believe that the findings provide a useful first assessment of the heritability of fairness-related behaviors. From comparing the behavior of mono- and dizygotic twins, the authors estimate that approximately 20% of variation in giving behavior is explained by (additive) genetic effects in their best-fitting model. Wallace et al. (2007) also used Swedish adult twin pairs to study heritability of ultimatum game responder behavior. As a responder's rejection behavior to an ultimatum game offer can be interpreted as the importance that a responder attaches to a fairness norm, this study presents valuable evidence on the heritability of fairness behavior. The authors find that more than 40% of the variation in subjects' behavior is explained by (additive) genetic effects. These twin designs have a number of weaknesses and are thought to overestimate heritability by many researchers. Benjamin et al. (2012) also used a sibling sample, but they apply a molecular genetic approach to study the heritability of economic and political preferences. Specifically, they used single-nucleotide polymorphism (SNP) data—important genetic markers—to estimate the proportion of variation in attitudes about fairness explained by common SNPs and they conducted a genome-wide association study (GWAS). They find that the heritability estimates based on the genotyped SNPs are about one half of the heritability estimated using twin studies. In fact, for their measure of attitudes about fairness, they even find that the SNPs do not explain any variation. An important result of their study is also that a large number of different genetic markers explain the heritable variation in individual preferences—but each with a small effect in terms of explained variance. It seems that any genetic origin of fairness is polygenic and highly complex. The complexity of the heritability of human behavioral tendencies and the fact that a simple (additive) separation of intergenerational transmission channels into “nature” (genes) and “nurture” (environment) is impossible, is further underlined by research on gene–environment interactions in behavioral genetics (see, e.g., Manuck & McCaffery, 2014).

In sum, the literature on the heritability of pro-social behavior has shown that there seems to be some genetic basis of fairness behavior and inequality acceptance. But heritability is a complex process that cannot be linked to a single gene, and heritability most likely is quite moderate. In contrast, family and environmental factors play a more important role in the intergenerational transmission of fairness and inequality acceptance.

6 | CONCLUSION

Fairness behavior and inequality acceptance play an important role in many everyday life situations, for example, in families, schools, at the workplace, and so forth. Fairness questions arise whenever humans are interacting with each other and limited resources need to be divided. During the last 20 years, a considerable amount of experimental economic studies has highlighted the importance of understanding fairness considerations in simple distributional situations and

has studied how they can be integrated into economic models. Parts of this literature focus on the nature and development of fairness and inequality acceptance in children and adolescents, thereby complementing our knowledge about fairness and inequality acceptance in adults.

Our survey unites the literature on the development fairness and inequality acceptance motives in children and adolescents. In particular, by unraveling and highlighting important fairness-related facets of social behaviors, we extend previous work by Sutter et al. (2019) that focuses on economic decision-making in children and adolescents in a more general way. While egalitarianism is the dominant fairness motive studied in the literature, we here go beyond egalitarianism, because under certain circumstances deviations from the “fifty-fifty” split might be considered as fair. This is the case in situations in which people act on behavioral motives such as meritocracy, efficiency seeking, maximin considerations, or parochialism.

With regard to development of fairness and inequality acceptance in childhood and adolescence, the survey discloses an overall relatively consistent developmental pattern of fairness motives and inequality acceptance. Whereas egalitarianism seems to be the dominant fairness motive in younger ages, inequality accepting motives develop in adolescence. We further discuss the role of fairness norms in distributional situations (e.g., List, 2007). From reviewing the literature on fairness norms, we conclude that social norms may guide social behaviors from late childhood on. It is notable that social environments, such as the school and the family, play an important role in the transmission of fairness norms. In those surroundings, children learn to interact in social groups and experience how fairness is perceived within those groups. Educational institutions and the close social environment of children therefore pose great potential for interventions that aim at fostering fairness behaviors, or general pro-sociality (see, e.g., Cappelen et al., 2020, Kosse et al., 2020, for recent advances into this direction).

Our survey also reveals clear avenues for further research. First, the findings in most of the studies that we include in our survey stem from Western society samples. At the same time, our discussion of heterogeneities, for example, with regard to socioeconomic profiles, has illustrated that this might be a quite restricted view. Hence, one important advancement for the field would be to test the paradigms applied in Western society samples in Non-Western societies (see, e.g., Chowdhury et al., 2022, for a recent contribution with evidence from Bangladesh). Second, our survey discusses social norms as a potential driver of fairness behaviors, but as we note, a post hoc interpretation of the findings in the existing studies is difficult. Experimental designs in future research should thus focus on disentangling different drivers of fairness, such as preferences versus norms. Finally, at the beginning of our survey, we have highlighted that there are differences in fairness with respect to opportunities and with respect to outcomes. Existing studies measuring fairness and inequality acceptance in distributional situations put a strong focus on fairness in terms of outcomes, and they often disregard fairness of opportunities. Beyond further improving our understanding of the development of different fairness motives, an important avenue for future research would thus also be to study the development of children’s and adolescents’ views on fairness of opportunities.

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ENDNOTES

- ¹Of course, social norms also play an important role for social behavior far beyond the study of dictator games, for example, when it comes to human cooperation in general (Fehr & Fischbacher, 2004; Fehr & Schurtenberger, 2018). Gächter et al. (2013), for example, investigated social preferences and social norms in a gift exchange experiment. They find that while social norms seem to matter, social preferences seem to provide a better explanation for observed behavior in their setting.
- ²Libertarians, moreover, accept all inequalities as fair. We refrain from discussing libertarianism in our survey article. Besides the study by Almås et al. (2010), who classify similar shares in all age groups under consideration as libertarians, we are not aware of studies that investigate libertarianism in children or adolescent samples.
- ³We are aware that other behavioral motives exist, that might underlie people's decisions to accept inequalities, such as egoism, spitefulness, or even altruism. The allocations that would result from following these motives, would, however, not be called fair. This survey is only concerned with inequalities that can be deemed fair.
- ⁴See, for example, Fehr and Schmidt (2006) for an overview on experimental designs that have been applied to elicit concerns for altruism, fairness, and reciprocity. We should mention here that behavior related to fairness and inequality acceptance can include strategic aspects (as, e.g., discussed by Fehr & Gächter, 2000). This becomes most obvious in bargaining situations, in which the decision of one individual is conditional on the decision encountered by another individual (e.g., Forsythe et al., 1994). Assuming that the outcome of the bargaining process is dependent on all participating individuals, the first-moving individual will make an assumption regarding the behavior of the second-moving individual and then tries to adjust her own action accordingly (comp., e.g., Cappelen & Tungodden, 2019; Nowak et al., 2000). If she aims to steer the decision-making process towards a favorable outcome, she will make a decision that will be regarded as fair, and thus hopefully reciprocated positively by the second mover. We limit our survey to fairness and inequality acceptance behaviors in non-strategic frameworks, that is, settings in which the decision-maker does not have to take subsequent decisions by other players into account. We do so because such settings may be influenced less by tactical play or concerns for rankings or competition among players (for an example with children, see Houser and Schunk, 2009, and compare Forsythe et al., 1994, and Van Dijk and Vermunt, 2000, for differences in outcomes between strategic and nonstrategic frameworks).
- ⁵See Engel (2011) for a meta-study on dictator game outcomes and List et al. (2021) for a general note on the interpretation of dictator game outcomes.
- ⁶Elenbaas (2019) argues that children might either be *for fairness*, which would be better reflected by the idea of egalitarianism, or *against unfairness*, which would rather be captured by the idea of inequality aversion.
- ⁷More specifically, participating adolescents chose from (4,4) versus (7.5,4), (4,4) versus (7.5,3.7), (0,0) versus (8,2), (7,5) versus (3,6), (2,7) versus (6,6) and (0,8) versus (4,4). The parametrization of the dictator game framework used in this study was originally designed by Charness and Rabin (2002).
- ⁸The experimental games applied in this study constitute a selection of games that were originally introduced by Engelmann and Strobel (2004) who studied the same behavioral motives in a university student sample.
- ⁹Given the relevance of in-group favoritism for very different facets of social behaviors and their interconnectedness, parochialism is studied in various different frameworks in the existing literature. Bindra et al. (2020) and Angerer et al. (2017), for example, are concerned with discrimination. Here, we discuss their findings with regard to fairness behaviors.
- ¹⁰Bindra et al. (2020) as well as Angerer et al. (2017) implemented a paradigm in which a dictator slips into the role of a spectator as she distributes an endowment between two recipients, one from an in-group and one from an out-group, without keeping anything for herself. This design has the advantage of enabling the elicitation of in-group favoritism without being biased by, for example, self-interests. Almås et al. (2017) applied both, a dictator game framework in which the individual has own stakes in the decision and a dictator game framework in which the decision-maker acts as the spectator. They argue that the stakeholder design enables the elicitation of the weight a decision-maker puts on fairness whereas the spectator design enables researchers to measure fairness without any confounds stemming from self-interests.

- ¹¹We are aware that other developmental processes, such as children's cognitive development, might also play a role for the implementation of (fair) distributions (comp., e.g., Chernyak et al., 2016). These, however, are not the focus of our survey article.
- ¹²Interestingly, Cobo-Reyes et al. (2020) find a u-shaped relation between age and egalitarianism over the whole life cycle. Thus, they find indeed that egalitarianism decreased as children get older but rebounded again in older ages.
- ¹³As in other European countries, children in Norway are about 10 years old in the 5th grade, and about 18 years old in 13th grade, respectively.
- ¹⁴Bennett et al. (1998) argue that it might, however, not only be subjective identification with the in-group but also a result of receiving positive information about the in-group that drives in-group favoritism.
- ¹⁵A way to elicit these normative standards is described by, for example, Krupka and Weber (2013).
- ¹⁶For a formal conceptualization of the "fifty-fifty" norm see Andreoni and Bernheim (2009). Further, note that evidence from different societies suggests that normative fairness motives might depend on the cultural environment (Henrich et al., 2005). Also, personal factors such as personality traits could influence how strong a social norm is adhered to or enforced (Eckel et al., 2011; Friehe & Schildberg-Hörisch, 2018; Schunk & Wagner, 2021).
- ¹⁷Doepke and Zilibotti (2017) provide a theoretical framework for the relationship between parenting style and socioeconomic context, showing that parenting style might be influential on children's preferences. Similarly, Heckman (2007) argues that parental investments govern preferences and choices of their children, implying that parental investments can also affect children's fairness behaviors.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no datasets were generated or analyzed during the current study.

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