The Fairness Effect on Cooperation in Asymmetric Social Dilemmas when Equality is Perceived as Unfair

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Eek, D., Biel, A., and Gärling, T. The fairness effect on cooperation in asymmetric social dilemmas when equality is perceived as unfair. Göteborg Psychological Reports, 1999, 29, No. 2. In three experiments the hypothesis was examined that in an asymmetric social dilemma perceived fairness of the distribution promotes cooperation. In support of the hypothesis, the results of Experiments 1 and 2 showed that willingness to voluntarily and anonymously pay for maintaining the quality of child care was related to ratings of perceived fairness of equal and equitable distributions of the quality of child care when it was a public good (provided by the municipality) or a market good (provided by private businesses). Experiment 1 also showed that an equal distribution of the public good was perceived to be fairer than an equal distribution of the market good, whereas the reverse was true for an equitable distribution. Economics students rated the equitable distribution as fairer and the equal one as less fair than did psychology students. These differences in ratings affected willingness to pay accordingly. Experiment 2 showed that when quality differences were explicitly revealed, an equitable distribution was by both student groups perceived as fairer than an equal distribution, irrespective of provision. Also the results of Experiment 3 corroborated the hypothesis in showing that an equitable distribution of quantity of child care was perceived to be fairer and increased willingness to pay as compared to an equal distribution.

Key words: Social dilemmas, cooperation, distributive justice, perceived fairness, willingness to pay.

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A social dilemma exists when there is a conflict between promoting one’s own interest and promoting a collective interest. More precisely, a social dilemma is according to Dawes (1980) characterized by the following two conditions: (i) No matter what others choose to do, an individual will always receive a better payoff if he or she chooses to promote his or her own interest (i.e., to defect) than to promote the collective interest (i.e., to cooperate), but (ii) if all choose to defect, everyone will be worse off than if all had chosen to cooperate.

Previous research (e.g., Biel & Gärling, 1995; Van Lange, Liebrand, Messick, & Wilke, 1992) has identified different kinds of social dilemmas. For instance, one important distinction is between public-good and resource type of social dilemmas. When being confronted with a public-good (or give) dilemma, one decides how much to give to a common resource. Resource (or take) dilemmas, on the other hand, are situations when one decides how much to take from a common resource. Another important distinction is between step-level and continuous social dilemmas. In the former the collective outcome is materialized when a sufficient number cooperates but is not affected when this number increases further. In contrast, in continuous social dilemmas the collective outcome increases with the number of cooperators. Yet another distinction is between symmetric and asymmetric social dilemmas. In symmetric social dilemmas the benefits and/or costs are the same for everyone, whereas in asymmetric social dilemmas benefits, costs, or both are distributed unequally. Not much research has investigated factors affecting cooperation in asymmetric social dilemmas (Van Lange et al., 1992), even though knowledge about such factors are important since most social dilemmas existing in real life are in fact examples of asymmetric dilemmas. For instance, people have different incomes and therefore different abilities to contribute to a public good. The present study focuses on asymmetric public-good dilemmas with continuous contribution. One hypothesis that will be examined is that perceived fairness of different distributive principles is an important factor promoting cooperation.

Based on previous research (Samuelson & Messick, 1986; Samuelson, Messick, Rutte, & Wilke, 1984; Samuelson, Messick, Wilke, & Rutte, 1986), Wilke (1991) proposed the GEF hypothesis which recognizes the importance of distributive fairness as a factor that increases cooperation in resource dilemmas. The hypothesis states that although individuals are greedy (G) and therefore try to maximize their own outcomes, their greed is constrained by the motive to maintain the resource efficiently (E) and the motive to achieve fairness (F) among the group members. In a survey of a nationwide representative sample, Biel, Eek, and Gärling (1997) found some support for the GEF hypothesis. The
resource Biel et al. investigated was child care provided by the municipality. Willingness to pay for municipality child care was conceived of as a public-good dilemma. Thus, every parent is better off by not contributing provided that a majority of the other parents pay. However, if too few parents pay and the quality of the child care therefore decreases, everyone is worse off than if they pay. Respondents rated the degree to which they thought that the distribution of the outcome (quality of child care) was equal (all children receive equally good care), directly related to input or equitable (children whose parents pay more receive better care than children whose parents pay less), or related to need (younger children with greater need receive better care than older children). In addition respondents rated the fairness of each principle as well as their willingness to pay for the child care. Several factors (e.g., municipality size, degree of municipality child care use, disposable income, degree of education, and political party preference) were found to affect the ratings of willingness to pay. As predicted by the GEF hypothesis, one of these factors was perceived fairness of the distribution although its role appeared to be minor. The results of the survey were subsequently replicated and extended in several laboratory experiments with university students as subjects (Eek, Biel, & Gärling, 1998). The experiments were modeled after the "hypothetical-society paradigm" (Mitchell, Tetlock, Mellers, & Ordóñez, 1993) in which subjects are asked to imagine that they are citizens of hypothetical societies described to them (e.g., with respect to income distribution). In general, perceived fairness was a more important determinant of willingness to pay (cooperation) in accounting for situational differences (e.g., principle of distribution of the outcomes) than in accounting for group or individual differences.

In experimental social dilemmas the distribution has almost exclusively been symmetric (Van Lange et al., 1992). Under these conditions subjects seem to prefer to contribute equally much to (or to take equally much from) a resource (e.g., Harris & Joyce, 1980; Rapoport, Budescu, Suleiman, & Weg, 1992; Rutte, Wilke, & Messick, 1987). Perhaps such an equal contribution or distribution provides a sense of fairness among group members. However, as suggested by Allison and Messick (1990), equality may also be a heuristic that is applied because of its simplicity and the low mental effort which normally is required for such an allocation. On the other hand, Van Dijk (1993) questioned the assumption that equality is applied because of simplicity. If no information is available about individual differences in profit or wealth, equality is also fair in that all receive an equal split. Furthermore, some research has shown that if there are known differences among the recipients' profit and wealth, another distributive principle than equality, possibly equity or need, may be applied (Lamm & Schwinger, 1980, 1983; Schwinger & Lamm, 1981; Van Dijk & Grodzka, 1992). Van Dijk (1993)
also showed that equality was applied by subjects even though, due to experimental manipulations, the implementation of equality required extensive calculations. This suggests that which principle will be applied is determined by fairness rather than simplicity.

In the studies by Biel et al. (1997) and Eek et al. (1998), a large majority of subjects perceived an equal distribution to be fair while an equitable distribution was perceived as unfair. Perceived fairness of a distribution related to need showed less consistency across subjects. Hence, the results were consistent with previous research (e.g., Allison & Messick, 1990; Harris & Joyce, 1980) demonstrating the dominance of preferences for an equal distribution. The test of the hypothesis that perceived fairness of the distribution affects cooperation in a public-good dilemma was therefore confined to situations where equality was perceived to be fair. The primary aim of the present three experiments was to extend the test of the hypothesis to conditions where an equitable distribution is perceived to be fair.

In order to investigate the hypothesis that cooperation (willingness to pay) in a public-good dilemma increases with perceived fairness which varies with the type of distribution, that is, when perceived fairness is associated both with equality and equity, a secondary aim thus became to find conditions under which different distributions are perceived to be fair. In Biel et al. (1997) and Eek et al. (1998), one reason for perceiving an equal rather than an equitable distribution of quality of child care to be fair may be that it is a public good provided by the municipality. Unlike goods purchased in a store where in general it seems to be fair that price is proportional to quality, it is not fair that those who pay more would receive a better child care than those who pay less. An underlying reason may be that an ideology promoting equality states that, among other things, the government should not permit differences in income to play a role for the children's welfare. From the same ideological standpoint, it is not acceptable that child care becomes a market good or service because then an equal distribution of quality is no longer perceived to be fair. Also, Lane's (1986) discussion about market justice versus political justice suggests that while equality and need are the preferred distributive principles in the polity, equity is the preferred principle in the market. Thus, if child care becomes a market good or service, an equitable distribution of the quality of child care may be perceived as fairer. Therefore, a testable prediction is that equity is perceived to be fairer if a "public good" is offered on a market. An example would be that municipality child care is privatized so that it is provided by private businesses.

In the present experiments subjects were presented with descriptions where child care either was provided by the municipality or by private businesses. Note that in the latter case, it is still a social dilemma. However, it is no longer a public-good dilemma but a "market-
good” dilemma. In Sweden, irrespective of who the provider is, the payment is the same combination of taxes and fees. Thus, the only thing that differs is who provides the good. Whereas an equal distribution of the quality of the child care was expected to be perceived as fairer when child care is provided by the municipality rather than by private businesses, an equitable distribution was hypothesized to be perceived as fairer for a privately rather than a municipality provided service.

Another possible related explanation of why an equitable distribution was perceived as unfair in Biel et al. (1997) and Eek et al. (1998) is that people do not assume that there are differences in quality of municipality child care. Although the definitions of the distributive principles implicitly revealed the existence of quality differences, people may not attend to such differences. However, if quality differences are explicitly revealed, people will perhaps accept that quality differences are related to payment.

The aforementioned hypotheses concerning factors that affect perceived fairness of distributions pertain to situational factors. There may also be group and individual differences, for instance, depending on political attitude (e.g., Biel et al., 1997; Mitchell et al., 1993). If differences in perceived fairness of a distribution depend on whether child care is identified as a market good or a public good, such differences may rest upon attitudes towards market vs. public solutions. Because of their training (cf. Frank, Gilovich, & Regan, 1993), economists may find it more acceptable than psychologists to identify child care as a market good when it is provided by private businesses, and therefore perceive an equitable distribution as fairer. In Experiments 1 and 2 economics students who were compared to psychology students were thus expected to perceive an equitable distribution of the quality of child care as fairer than psychology students. In contrast, psychology students were expected to perceive an equal distribution as fairer. Therefore, economics students were expected to be more willing to pay for an equitable distribution than were psychology students, whereas psychology students were expected to be more willing to pay than economics students for an equal distribution.

Our main hypothesis is the fairness effect on willingness to pay. Thus, when one distribution is perceived as fairer than another, willingness to pay should vary in the same direction as perceived fairness varies. So far it has been argued that an increased perceived fairness of an equitable distribution of child care is likely to occur when the provider is a private business rather than the municipality. This hypothesis is tested in Experiments 1 and 2. Furthermore, the suggestion has been made that equity might be perceived as fairer when quality differences are explicitly rather than implicitly revealed. This hypothesis is tested in Experiment 2. Furthermore, in both Experiments 1 and 2 the hypothesis is tested that individual differences in education may affect perceived fairness of distribution. Yet another possibility is that an equitable
distribution of a public good is perceived to be fairer for certain types or aspects of resources than other. Experiment 3 was devised to demonstrate such a possibility. In the case of municipality child care, an equitable distribution of quality may not be perceived as fair whereas this may apply to quantity (number of hours of child care). One possible reason is that quality is less transparent than quantity. Thus, in line with Van Dijk (1993) uncertainty about differences in outcome may make subjects favor an equal distribution. With the purpose of reducing such differences in transparency, in Experiment 2 quality of child care was expressed as the number of employed caregivers. A more plausible explanation (in the case of child care) is that decreasing the number of hours of child care is acceptable from an ideological standpoint because it is not likely to have the same negative impact on the children’s welfare as would reduction in quality. Therefore, we argue that an equitable distribution of quantity of child care is perceived as fairer than an equal distribution no matter who is the provider. This hypothesis is tested in Experiment 3.

Experiment 1

In previous research (Biel et al., 1997; Eek et al., 1998) a relationship was found between willingness to pay and fairness of distributions when equality was the dominant principle. Currently this finding is extended to conditions where other distributions are perceived as fair. Thus, not only conditions where equal distributions are perceived to be fairer than equitable ones will be investigated but also distributions when equitable distributions are expected to be perceived as fairer than equal ones. In Experiment 1, an equitable distribution was expected to be perceived as fairer when child care was provided by a private business than when it was provided by the municipality. An equal distribution was expected to be perceived as fairer when child care was provided by the municipality than when it was provided by private businesses. A positive relationship was expected between perceived fairness and willingness to pay. Experiment 1 also investigated whether psychology students and economics students differ with respect to perceived fairness of distribution. Since economics students, in contrast to psychology students, in their education are made aware of market principles, they were hypothesized to perceive an equitable distribution as fairer and therefore be more willing to pay than psychology students when equity applies whereas the reverse was expected for an equal distribution.
Method

Subjects. Forty-eight undergraduate students at Göteborg University (24 in psychology and 24 in economics) served as subjects. The psychology students consisted of 17 women and 7 men (mean age = 27.7 years), whereas the economics students consisted of 8 women and 16 men (mean age = 23.5 years). All subjects had completed two or three semesters of their educational programs.

Procedure\(^1\). In economics and psychology classes, students were asked to complete a questionnaire measuring their opinions about municipality child care. Subjects were informed that they would be paid the equivalent of US$6.5 if they participated and that they were guaranteed anonymity. Those who agreed to participate completed the questionnaire individually immediately after class. They were monitored by a male experimenter. Completing the questionnaire took about 20 minutes, after which subjects were paid and debriefed.

In the questionnaire subjects were on one page asked to imagine that they some time in the future lived in either of two hypothetical municipalities (to be described on each of two following pages), that they were married, and that they were parent of a child who needed care in a day nursery. Subjects were told that in each of the municipalities some day nurseries were run by the municipality whereas others were run by private businesses.

The municipalities described differed with respect to how quality of child care was distributed. In one municipality the distribution was equal. Thus, subjects were told that in this municipality "all children receive equally good care regardless how much their parents pay." In the other municipality an equitable distribution was implied by telling subjects that in this municipality "children whose parents pay more receive better care than children whose parents pay less." The order of presentation was counterbalanced so that half of the subjects received the description of the municipality with an equal distribution before that of the municipality with an equitable distribution, the other half of the subjects in the reverse order.

For each municipality subjects were asked to rate on a 100-mm long graphical scale how fair they perceived the distribution. The left endpoint of the scale was defined as "not fair at all," the right endpoint as "very fair." After having made the rating, subjects were told that the quality of

\(^1\) A measure of each subject's social value orientation (Kuhlman & Marshello, 1975; Van Lange & Kuhlman, 1994) was also obtained in Experiments 1, 2, and 3. The aim was to see if differences in willingness to pay between proselves and prosocals were accounted for by differences in perceived fairness of the distributions. However, because only few subjects were possible to classify as proselves, the results were inconclusive and will therefore not be reported.
the child care was being jeopardized because of the day nursery’s bad finances. Therefore, they were asked to indicate on another graphical scale how much they voluntarily and anonymously would pay each month (between SEK 0 and 1000, 1 SEK is approximately US$0.13) for maintaining the quality of the child care. The likelihood that the quality would be maintained was said to increase with the amount of voluntary contributions. The ratings of perceived fairness and willingness to pay were for each municipality made under two conditions. Half of the subjects were first asked to imagine that the day nursery was run by the municipality, then that it was run by a private business. The other half of the subjects made the same ratings in the reverse order.

**Results and Discussion**

The mean ratings of perceived fairness and willingness to pay are given in Table 1. They were submitted to parallel 2 (student group: economics vs. psychology) by 2 (provision: municipality vs. private businesses) by 2 (distribution: equal vs. equitable) mixed analyses of variance (ANOVAs) with repeated measures on the last two factors. The ratings of willingness to pay were also submitted to an analysis of covariance (ANCOVA) with the ratings of perceived fairness as covariate. This analysis confirmed the main hypothesis in that willingness to pay was positively affected by perceived fairness in yielding a significant regression coefficient within subjects ($\beta = .44$, $t_{(45)} = 3.02$, $p < .01$). Thus, the fairer the subjects perceived the distribution, the more they were willing to pay to maintain the quality of the service.

In the ANOVA on perceived fairness, a significant main effect of distributive principle, $F_{(1, 46)} = 79.33, p < .001$, indicated that across all conditions equality was perceived as fairer than equity ($M = 72.8$ vs. 22.8). However, the two-way interaction between distribution and provision was significant, $F_{(1, 46)} = 17.94, p < .001$. In line with the hypothesis, perceived fairness increased for an equitable distribution when the public good was provided by private businesses compared to when it was provided by the municipality ($M = 31.4$ vs. 14.3). An equal distribution was perceived as fairer when the public good was provided by the municipality than when it was provided by private businesses ($M = 77.0$ vs. 68.7). In Bonferroni corrected separate $t$-tests at $p = .05$, these mean differences were reliable. However, the interaction between distribution and provision was not significant on the ratings of willingness to pay, $F_{(1, 46)} < 1$ ($F_{(1, 45)} < 1$ in the ANCOVA).
Table 1
***Mean Ratings of Perceived Fairness and Willingness to Pay as Related to Type of Distribution (Equitable vs. Equal), Type of Provision (Municipality vs. Private Businesses), and Student Group (Students of Economics vs. Psychology)***

<table>
<thead>
<tr>
<th>Distribution</th>
<th>Perceived fairness</th>
<th>Willingness to pay</th>
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<tbody>
<tr>
<td></td>
<td><strong>M</strong> (SD)</td>
<td><strong>M</strong> (SD)</td>
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<tr>
<td><strong>Equal</strong></td>
<td></td>
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<tr>
<td>Economics students</td>
<td></td>
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<tr>
<td>Provided by municipality</td>
<td>70.1 (30.9)</td>
<td>21.7 (24.9)</td>
</tr>
<tr>
<td>Provided by private businesses</td>
<td>58.2 (31.6)</td>
<td>48.5 (30.7)</td>
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<tr>
<td>Psychology students</td>
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<tr>
<td>Provided by municipality</td>
<td>83.8 (22.9)</td>
<td>6.9 (10.2)</td>
</tr>
<tr>
<td>Provided by private businesses</td>
<td>79.2 (25.5)</td>
<td>14.2 (22.1)</td>
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<tr>
<td><strong>Equitable</strong></td>
<td></td>
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<tr>
<td>Economics students</td>
<td></td>
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<tr>
<td>Provided by municipality</td>
<td>27.8 (29.1)</td>
<td>30.8 (26.9)</td>
</tr>
<tr>
<td>Provided by private businesses</td>
<td>41.1 (27.6)</td>
<td>41.0 (27.6)</td>
</tr>
<tr>
<td>Psychology students</td>
<td></td>
<td></td>
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<tr>
<td>Provided by municipality</td>
<td>38.8 (23.7)</td>
<td>27.9 (26.4)</td>
</tr>
<tr>
<td>Provided by private businesses</td>
<td>37.5 (24.2)</td>
<td>31.1 (26.3)</td>
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</table>

The two-way interaction between distribution and student group was significant in the ANOVA on perceived fairness, $F_{(1, 46)} = 13.97$, $p < .001$. In line with the hypothesis economics students perceived an equitable distribution to be fairer than did psychology students ($M = 35.1$ vs. 10.6) whereas psychology students perceived an equal distribution to be fairer than did economics students ($M = 81.5$ vs. 64.2). In Bonferroni corrected $t$-tests at $p = .05$, these mean differences were reliable. Economics students were more willing to pay than the psychology students were when the distribution was equitable ($M = 35.9$ vs. 29.5) and less willing to pay for the equal distribution ($M = 34.4$ vs. 38.2). In Bonferroni corrected $t$-tests at $p = .05$, these mean differences were not significant. However, the two-way interaction between distribution and student group was
significant in the ANOVA on willingness to pay, $F(1, 46) = 4.82, p < .05$, but not in the ANCOVA, $F(1, 45) < 1$.

Unexpectedly, the main effect of provision was significant in the ANOVA on perceived fairness, $F(1, 46) = 6.78, p < .05$, and in the ANOVA on willingness to pay, $F(1, 46) = 5.28, p < .05$ ($F(1, 45) = 3.75, p < .10$ in the ANCOVA). Across all conditions, subjects perceived the distribution of child care as fairer and they were more willing to pay when it was provided by private corporations than when it was provided by the municipality ($M = 50.0$ vs. $45.6$ for perceived fairness and $M = 37.6$ vs. $31.4$ for willingness to pay). The two-way interaction between student group and provision was marginally significant in the ANOVA on willingness to pay, $F(1, 46) = 3.83, p = .05$ ($F(1, 45) = 3.03, p < .10$ in the ANCOVA) and marginally significant in the ANOVA on perceived fairness, $F(1, 46) = 3.25, p < .10$. Students of economics perceived a privately provided service as significantly fairer ($M = 53.4$) than a municipality provided service ($M = 45.9$). However, for psychology students there were no differences between how fair they perceived the privately provided service ($M = 46.7$) and the municipality provided service ($M = 45.4$). Furthermore, whereas economics students were significantly more willing to pay for privately ($M = 41.0$) than municipality provided child care ($M = 29.3$), there were no significant difference in willingness to pay for psychology students between the privately ($M = 34.3$) and the municipality provided service ($M = 33.4$). The three-way interaction involving distribution was significant in the ANOVA on perceived fairness, $F(1, 46) = 5.00, p < .05$. As may be seen in Table 1, economics students were affected by who the provider was when they rated how fair they perceived both distributions. However, there were no clear differences for psychology students' ratings of perceived fairness of equality between private or municipality provision.

In summary, the results showed the hypothesized relationship between perceived fairness and willingness to pay. A main effect of distribution on subjects' ratings of perceived fairness was not expected. As found previously, equality was still perceived as fairer than equity. However, all of the effects on perceived fairness implied by the hypotheses were reliable. Consequently, subjects differed in their ratings of perceived fairness between municipality and private provision and economics students perceived equity as fairer than did psychology students. Not all of these effects were however replicated in the ANOVA on willingness to pay. Still, with one exception the mean differences in the ratings of willingness to pay followed the same pattern as the mean fairness ratings. The effect of fairness on willingness to pay did not seem to be stronger than found previously. The reason may be that in line with the GEF hypothesis (Wilke, 1991), many other factors influence willingness to pay. In the present experiment a reliable main effect of provision was found. Willingness to pay was higher for the public good when it was provided by
private businesses than when it was provided by the municipality. One potential explanation of this finding is that subjects believe that their contributions will more likely affect the quality of child care when it is provided by a private business rather than by the municipality. This latter explanation can be linked to what Kerr (1992) labels the positive effect of perceived efficacy on degree of cooperation in social dilemmas.

Experiment 2

In line with the hypothesis Experiment 1 showed that perceptions of fairness of equality and equity differ with regard to provision. Thus, an increase in perceived fairness of equity was found when child care was provided by private businesses compared to the municipality. Still, in all cases subjects perceived equality as fairer than equity. It is possible that subjects did not attend to existing quality differences. The aim of Experiment 2 was to investigate the effect of explicit quality differences. Thus, an equitable distribution was hypothesized to be perceived as fairer than an equal distribution when people are made aware of the existence of quality differences. As a result, willingness to pay for an equitable distribution would increase. Subjects were told that quality differed between different day nurseries. This was the only difference between Experiments 1 and 2.

Method

Subjects. Another 48 undergraduate students at Göteborg University (24 in psychology and 24 in economics) served as subjects. The psychology students consisted of 18 women and 6 men (mean age = 27.6 years), whereas the economics students consisted of 11 women and 13 men (mean age = 25.5 years). They were recruited in the same way as in Experiment 1.

Procedure. The procedure was identical to the one used in Experiment 1. However, in the questionnaire subjects were given the explicit information that the number of employed caregivers varied for different day nurseries. They were told that as a consequence there were differences in quality of the child care because a day nursery with many employed caregivers provides better quality of the care than a day nursery with few employed caregivers. Since quality was defined in terms of number of employees, the definitions of equality and equity were different from the definitions in Experiment 1. In the municipality where the distribution was equal, subjects were told that “parents pay equally
much irrespective of whether they have their child in a day nursery with many or with few employed caregivers.” In the municipality where the distribution was equitable, subjects were informed that “parents who have their child in a day nursery with many employed caregivers pay more than parents who have their child in a day nursery with few employed caregivers.”

**Results and Discussion**

Means of perceived fairness and willingness to pay are given in Table 2. They were submitted to parallel 2 (student group: economics vs. psychology) by 2 (provision: municipality vs. private businesses) by 2 (distribution: equal vs. equitable) mixed ANOVAs with repeated measures on the last two factors. The ratings of willingness to pay were also submitted to an ANCOVA with the ratings of perceived fairness as covariate.

The ANCOVA confirmed the main hypothesis in that willingness to pay was positively affected by perceived fairness in yielding a significant regression coefficient between subjects (beta = .30, t(45) = 2.09, p < .05) and a marginally significant regression coefficient within subjects (beta = .25, t(45) = 1.74, p < .10).

In the ANOVA on perceived fairness, the only significant effect was a main effect of distribution, $F_{(1, 46)} = 25.98, p < .001$. As expected, across all conditions equity was perceived as fairer than equality ($M = 58.5$ vs. 29.9).

This effect was not found in the ANOVA on willingness to pay. Instead, replicating the unexpected effect from Experiment 1, the main effect of provision was significant, $F_{(1, 46)} = 4.81, p < .05$. Again, subjects were more willing to pay for the privately provided child care ($M = 40.2$) than for the child care provided by the municipality ($M = 36.3$). No other significant effects were found in any of the analyses. Thus, neither perceived fairness nor willingness to pay varied between student groups. The effect of provision on perceived fairness was eliminated when quality differences were explicitly revealed.
Table 2
Mean Ratings of Perceived Fairness and Willingness to Pay as Related to Type of Distribution (Equitable vs. Equal), Type of Provision (Municipality vs. Private Businesses), and Student Group (Students of Economics vs. Psychology)

<table>
<thead>
<tr>
<th>Distribution</th>
<th>Equal</th>
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<th>Equitable</th>
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<tr>
<td></td>
<td>M</td>
<td>(SD)</td>
<td>M</td>
<td>(SD)</td>
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<tr>
<td>Perceived fairness</td>
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<tr>
<td>Economics students</td>
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<tr>
<td>Provided by municipality</td>
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<td>(21.5)</td>
<td>57.2</td>
<td>(24.9)</td>
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<tr>
<td>Provided by private businesses</td>
<td>29.5</td>
<td>(18.1)</td>
<td>65.0</td>
<td>(24.3)</td>
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<td>Psychology students</td>
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<tr>
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<td>29.8</td>
<td>(27.1)</td>
<td>54.6</td>
<td>(32.8)</td>
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<td>Provided by private businesses</td>
<td>30.6</td>
<td>(23.7)</td>
<td>57.3</td>
<td>(31.3)</td>
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<tr>
<td>Willingness to pay</td>
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<tr>
<td>Provided by municipality</td>
<td>33.5</td>
<td>(26.5)</td>
<td>36.5</td>
<td>(27.0)</td>
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<td>Provided by private businesses</td>
<td>36.4</td>
<td>(24.8)</td>
<td>38.9</td>
<td>(25.1)</td>
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<tr>
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<td>(25.1)</td>
<td>37.7</td>
<td>(26.1)</td>
</tr>
<tr>
<td>Provided by private businesses</td>
<td>41.0</td>
<td>(26.3)</td>
<td>44.5</td>
<td>(27.2)</td>
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</table>
Experiment 3

The aim of Experiment 3\(^2\) was to investigate whether or not an equitable distribution of a public good is perceived to be fairer for certain types or aspects of resources than other. In Experiment 1, an equal distribution of quality was perceived as fairer than an equitable distribution. However, when quality differences were made explicit in Experiment 2 (number of employed caregivers), equity was perceived as fairer than equality. In Experiment 3, differences in quantity of child care (number of hours of child care) is assumed to raise perceived fairness of equity further. The suggested reason is that differences in quantity are not likely to affect children's welfare to the same extent as would differences in quality. Therefore, an equitable distribution of quantity of child care was expected to be perceived as fairer than an equal one irrespective of whether it is provided by the municipality or by private businesses. Willingness to pay was therefore expected to be higher when child care is distributed equitably compared to when it is distributed equally.

Method

Subjects. Another 56 (34 women, mean age = 26.9; 22 men, mean age = 27.6 years) undergraduate students of psychology at Göteborg University served as subjects. They were recruited in the same way as were the psychology students in Experiments 1 and 2.

Procedure. The procedure was essentially the same as in Experiments 1 and 2. However, instead of differences between the

\(^2\) A secondary aim of Experiment 3 was to investigate whether or not the different definitions of the distributive principles in Experiments 1 and 2 affected the fairness ratings. In Experiment 1, the distributions were defined from the children's perspective (e.g., "children whose parents pay more receive better care than children whose parents pay less"). In Experiment 2, the distributions had to be defined differently because quality differences were explicitly revealed, and were therefore defined from the parents' perspective (e.g., "parents who have their child in a day nursery with many employed caregivers pay more than parents who have their child in a day nursery with few employed caregivers"). An additional aim of Experiment 3 was to investigate whether or not it mattered from what perspective the distributions were defined. Thus, in Experiment 3 two definitions of equality and equity were used as a between-subjects factor. The definitions were comparable to the definitions used in Experiments 1 and 2, respectively. This factor did neither affect subjects' fairness ratings nor subjects' ratings of willingness to pay and will therefore not be reported further.
municipalities in how quality of child care is distributed, there were differences in the distribution of quantity (number of hours of child care). When the distribution was equal subjects were informed that in this municipality "parents pay equally much irrespective of the number of hours their child is in the day nursery." When the distribution was equitable, subjects were informed that in this municipality "parents pay an amount proportional to the number of hours their child is in the day nursery." The order between the municipalities was counterbalanced. In each group a randomly selected half of the subjects were instructed that the day nursery was run by the municipality, whereas the remaining half of the subjects were instructed that the day nursery was run by a private business. Subjects were for each municipality asked to rate the perceived fairness of the distribution in the same way as in Experiments 1 and 2. After having made the ratings, subjects were likewise asked to indicate their willingness to pay to maintain the prevailing opening hours of the day nursery. The likelihood that the opening hours would be maintained was said to increase with the amount of voluntary contributions.

Results and Discussion

Table 3 presents the mean ratings of perceived fairness and willingness to pay. The ratings were submitted to separate, parallel 2 (provision: municipality vs. private businesses) by 2 (distribution: equal vs. equitable) mixed ANOVAs with repeated measures on the last factor. The ratings of willingness to pay were also submitted to an ANCOVA with the ratings of perceived fairness as covariate. This analysis confirmed that willingness to pay was affected by perceived fairness in yielding a significant regression coefficient within (\( \beta = .33, t(53) = 2.60, p < .05 \)) and a marginally significant regression coefficient between subjects (\( \beta = .25, t(53) = 1.90, p < .10 \)).

In support of the hypothesis, when quantity varied an equitable distribution was perceived as fairer than an equal distribution (\( M = 60.6 \) vs. 36.8) and willingness to pay was higher for equity than for equality (\( M = 34.2 \) vs. 29.8). On the ratings of fairness, the main effect of distribution was highly significant, \( F(1, 54) = 18.32, p < .001 \). On the ratings of willingness to pay, the main effect of distribution was significant in the ANOVA, \( F(1, 54) = 4.02, p < .05 \), but not in the ANCOVA, \( F(1, 53) < 1 \). No other effects reached significance in any of the analyses.
Table 3
Mean Ratings of Perceived Fairness and Willingness to Pay as Related to Type of Distribution (Equitable vs. Equal) and Type of Provision (Municipality vs. Private Businesses)

<table>
<thead>
<tr>
<th>Distribution</th>
<th>Equal</th>
<th>(SD)</th>
<th>Equitable</th>
<th>(SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived fairness</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provided by municipality</td>
<td>33.8</td>
<td>(22.1)</td>
<td>59.4</td>
<td>(29.4)</td>
</tr>
<tr>
<td>Provided by private businesses</td>
<td>39.8</td>
<td>(26.1)</td>
<td>61.7</td>
<td>(26.0)</td>
</tr>
<tr>
<td>Willingness to pay</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provided by municipality</td>
<td>32.0</td>
<td>(23.7)</td>
<td>34.8</td>
<td>(23.7)</td>
</tr>
<tr>
<td>Provided by private businesses</td>
<td>27.6</td>
<td>(23.8)</td>
<td>33.7</td>
<td>(25.8)</td>
</tr>
</tbody>
</table>

General Discussion

In earlier studies (Biel et al., 1997; Eek et al., 1998) it was found that an equitable distribution was perceived as unfair for allocating resources for child care provided by the municipality and that an equal distribution was perceived as fair. The perceived fairness also had a positive effect on willingness to pay. The present experiments aimed at studying whether the positive relationship between fairness and cooperation holds up when an equitable distribution is perceived to be fair.

In line with the hypothesis and the earlier results, in all three experiments the perceived fairness of distribution affected willingness to pay to maintain the quality or quantity of child care. Although studies on the relationship between distributive justice and cooperation in social dilemmas are rare, some earlier studies have investigated situations where an equal distribution has been the dominant principle (e.g., Messick, Wilke, Brewer, Kramer, Zemke, & Lui, 1983; Van Dijk, 1993; Van Dijk & Wilke, 1995; Wilke, 1991). Contributing to this research, the present experiments showed that the positive relationship is
also found under circumstances when other distributive principles are preferred. To not cooperate was thus constrained by the motive to realize fairness also for an equitable distribution. The experiments reported here like those in Eek et al. (1998) extend the validity of the GEF hypothesis (Wilke, 1991) to asymmetric public-good dilemmas. More importantly, the present studies extend the validity of the GEF hypothesis to situations where another distributive principle than equality is dominant.

The present experiments also addressed the question why an equitable distribution sometimes is perceived as fair. As the results showed, when subjects were focusing on explicit quality and quantity differences of the service provided, an equitable distribution was perceived as a fairer principle as compared to when these differences were implicit. Hence, when there are known differences in quality (some receive better care than others), or known differences in quantity (some utilize the service more than others), it is perceived as fair that the more advantageous pay more.

In Experiment 1 when quality differences were implicitly defined in the definitions of the distributive principles, there were also differences in perceived fairness depending on whether the child care was provided by the municipality or by private businesses. An equitable distribution was perceived as fairer in the latter case than in the former, whereas the opposite pattern was found for an equal distribution. Thus, it appears to be fairer to pay an amount proportional to quality for a market good than for a public good, perhaps reflecting different goals with the distributions (Deutsch, 1975, 1985). Deutsch suggested that what determines the application of one of three distributive principles, equality, equity, and need, is the goal with the distribution. If the goal is economic production, equity is likely to be applied since equity encourages efficiency. When the goal of the distribution is to support relationships among members of a group, an equality norm that signals equal status among its group members is expected to be applied. Finally, when personal development and well being are the primary goals, an allocation based on group members’ relative needs should manifest itself.

In relation to Deutsch’s suggestions and in line with Lane’s (1986) discussion of market justice versus political justice, it may be the case that the distribution of a market good should aim at efficiency and economic production. In contrast, the goal with the distribution of a public good would be to provide everyone with the same outcome. Thus, a distribution of a public good is perceived as fulfilling other goals than a distribution of a market good. Moreover, it is also likely that people conceive of government-linked institutions, such as a municipality child care, as more strongly concerned with advancing the collective interest of the society than are private institutions. However, in Experiments 2 and 3, when the differences were explicitly revealed, perceived fairness of an equal and an equitable distribution were the same for the public and the
market good. This may indicate that for a market good, an equitable distribution is likely to be applied to a wide range of aspects of the service. However, for a public good, an equitable distribution is only fair for certain more transparent aspects of a service. Quantity is one such aspect that is equitable for both a market and a public good, quality is not unless it is made explicit. In the case of child care, an ideology promoting equality states that, among other things, the government should not permit differences in income to play a role for the children’s welfare. Decreasing the number of hours may however be acceptable because it is not likely to have the same negative impact on the children’s welfare as would reduction in quality. In addition, if parents choose more hours of child care they are likely to be able to raise their income from paid work. Thus, it would be perceived as unfair if they did not also pay more.

The present results also provide some new insights concerning why earlier research has shown that economics students differ from other groups of students in their propensity to cooperate in social dilemmas (Marwell & Ames, 1981). In several studies of the provision of a public good, Marwell and Ames (1981) found a similar degree of cooperation among different student groups, except economics students who cooperated drastically less. In attempting to explain this result, Frank et al. (1993) found that studying economics inhibits cooperation. Thus, when beginning to study economics, students may cooperate to the same extent as other student groups. However, when they in their education are confronted with the self-interest model of economics, their degree of cooperation declines. That this finding cannot be generalized across situations was shown in Experiment 1. Here, economics students perceived an equitable distribution as fairer and an equal distribution as less fair than did psychology students. Albeit that there were such differences, economics students were as willing to pay as were psychology students provided that they perceived the distribution as fair.

Why then did the two student groups differ in their perceptions of distributive justice? Many reasons are of course possible. For instance, different student groups may differ in political attitudes and beliefs. Nevertheless, we suggest that a major reason is that economics students more than many other students know of market principles. Even more important, economics students are perhaps more willing than psychology students to accept market principles when a public good such as municipality child care is offered on a market. As the results of Experiment 1 indicate, economics students were more affected by provision when they made their ratings of perceived fairness and decided how much to pay. As a matter of fact, irrespective of the distribution, economics students perceived a private provided service as fairer than a municipality provided service and they were more willing to pay for private than for municipality provision. The effects of student group were not replicated in Experiment 2. This is probably due to the strongly
enhanced perceived fairness of equity when quality differences were made explicit. Both student groups then agreed that equity was the fairest principle.

In the present experiments imagined descriptions were used and the subjects were not parents who utilized child care. However, it is important to note that the results from the survey study of a nationwide representative sample of Swedish parents' attitudes to child care (Biel et al., 1997) were successfully replicated in experiments similar to those reported here (Eek et al., 1998). Therefore, we feel confident that the present results would have been essentially the same had we used parents as subjects.

Two other limitations should also be mentioned. One is that our measure of cooperation (willingness to pay) was a judgmental measure of intentions. The results could have differed if a behavioral measure had been used. It should also be mentioned that our results concerning the relationship between perceived fairness of distribution and willingness to pay is correlational. However, we think it is quite implausible that willingness to pay would affect perceived fairness of the distribution. Another limitation is that the number of females and males differed within and between the different groups in the experiments. However, analyses were conducted to check for eventual sex differences. No such effects were found in any of the analyses.

Finally, we note a practical implication. Once a service is privatized, people accept new standards. As an example, it is no longer guaranteed that citizens in less densely areas receive the same mail or telephone service as citizens in big cities. Once a customer, one should be prepared to pay for the costs. And people will consider it to be fair. In Sweden privatizing of such services as child care, social insurances, medical services, and the mail service have been controversial. Many people regard these services as public goods where everyone should receive the same treatment. However, once privatized people may be prepared to accept differences in quality and regard other distributive principles than equality as fair. A common opinion might also be that the quality should not differ in a service provided by the municipality. Had subjects been asked to choose between an equity solution or a solution guided by equality, or to turn an equitable solution into a solution based on equality, they might have preferred the latter. It is fair that people who receive a better treatment also pay more but it is also fair that all people are treated equally.
References


