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Medium of Exchange Matters: What's Fair for Goods Is Unfair for Money

Sanford E. DeVoe[1] and Sheena S. Iyengar[2]
[1]University of Toronto and [2]Columbia University

Abstract

Organized groups face a fundamental problem of how to distribute resources fairly. We found people view it as less fair to distribute resources equally when the allocated resource invokes the market by being a medium of exchange than when the allocated resource is a good that holds value in use. These differences in fairness can be attributed to being a medium of exchange, and not to other essential properties of money (i.e., being a unit of account or a store of value). These findings suggest that egalitarian outcomes have a greater likelihood of being accepted as fair when the resources being distributed take the form of in-kind goods rather than of cash transfers.

Keywords

money, distributive justice, fairness

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A fundamental problem of any organized group is how to allocate scarce resources among its members. The preference for distributing resources equally among group members emerges early in human development, between the ages of 3 to 8 years (Fehr, Bernhard, & Rockenbach, 2008). Although a strong preference for equality continues to be the prevailing norm of distributive justice within the social and political spheres of life, a preference for differentiation based on individual contributions is normative within the economic domain (Bazerman, White, & Loewenstein, 1995; Hochschild, 1981). Our research investigated whether, within the economic domain of work, preferences for egalitarianism vary as a function of the resources being distributed. Specifically, we found that the equal distribution of resources independent of individuals' contributions is deemed less fair when the resource is a medium of exchange in the market than when the resource derives its value from use.

Three essential characteristics of money distinguish it from resources that have their value in use (e.g., Frank & Bernake, 2004): being a medium of exchange (an asset used to purchase goods and services), a unit of account (a standard and easily divided numerical unit of value), and a store of value (reliably saved and retrieved). Money need not have any inherent value so long as it is a consensual medium of exchange in the market. In earlier periods of human history, goods that held inherent value were used as a medium of exchange. For instance, the word *salary* (from the Latin word *salarium*, meaning "salt") has its etiology in the practice of compensating Roman soldiers for their services with the valuable commodity of salt.

Although the use of a medium of exchange for goods and services is relatively recent in human history (Burgoyne & Lea, 2006), studies that introduced token reinforcers to chimpanzees have demonstrated that a medium of exchange can be as effective as food to conditionally reinforce behavior (Schwartz & Robbins, 1995). As the primary proxy for scarce resources in modern society, money has been directly linked with such basic drives as hunger and sexual attraction (Briers, Pandelaere, Dewitte, & Warlop, 2006; Nelson & Morrison, 2004).

If money is merely a proxy for nonmonetary resources, it should be allocated just like any other nonmonetary resource. Resources, however, are associated with distinct norms of allocation that, when applied, will lead people to treat monetary resources differently than nonmonetary resources. In particular, relational models theory (Fiske, 1992) distinguishes a market-pricing allocation model, in which resources are allocated based on precise ratios of value in a market exchange, from allocation models based on social relationships (i.e., norms of cooperation, hierarchy, and tit-for-tat exchange). Although allocation models based on social relationships are acquired first in human development, the acquisition of a market-pricing model begins as early as age 9. When individual contributions are heterogeneous, only a market-pricing allocation model allows precise differentiation among individuals

Corresponding Author:
Sanford DeVoe, University of Toronto, Rotman School of Management, 105 St. George St., Toronto, Ontario, Canada M5S 3E6
E-mail: sanford.devoe@rotman.utoronto.ca

according to each individual's input. Consequently, the predominant model for the organization of work and employment contracts is market pricing.

Research demonstrates that money is implicitly linked with the market-pricing model (McGraw & Tetlock, 2005; Vohs, Mead, & Goode, 2008). When people are unconsciously primed with the concept of money versus neutral primes, they demonstrate less cooperation and communal behavior, suggesting that thinking of money causes them to decrease how much they apply social-relationship models to a situation (Vohs, Mead, & Goode, 2006). Moreover, Heyman and Ariely (2004) found that the introduction of money into requests for assistance can undermine the degree of help individuals offer in return. When individuals are paid for their help with money, a market-pricing model is invoked, and individuals adjust their helping effort in direct relationship to the amount of money they are offered as a gift for the activity (e.g., giving less help when given a small amount of money). In contrast, when individuals are asked to provide help in exchange either for no money or for nonmonetary gifts, social-relationship models are invoked, and individuals' helping efforts are independent of what they receive in return. Irrespective of individuals' motivations to help others, it is a violation of the market-pricing model to allocate resources independently of relevant contributions.

Recent research has focused on the implementation of a fairness motive when being fair is costly or directly conflicts with self-interest (Knoch, Pascual-Leone, Meyer, Treyer, & Fehr, 2006; Marlowe et al., 2008). In our investigation, we focused only on evaluations of fairness and elicited judgments in the absence of self-interest or altruism. We examined allocation preferences within an employment context, in which allocating money equally is likely to be evaluated as less fair than allocating money according to individual inputs. Before conducting our experiments, we carried out a pilot study to verify this assumption and its cultural generalizability.

Pilot Study

Employees from a multinational organization with locations in Argentina (n = 65), Australia (n = 38), Brazil (n = 116), Mexico (n = 70), the Philippines (n = 44), Singapore (n = 42), Taiwan (n = 90), and the United States (n = 534) imagined that they were a division manager who was in charge of distributing $1 million of unexpected profits among 100 employees. Participants evaluated the fairness of two possible allocation plans on a 9-point rating scale (from 1, *extremely unfair*, to 9, *extremely fair*). Results showed that distributing the money to employees on the basis of their inputs was rated as more fair (M = 5.16, SE = 0.11) than allocating an equal amount to each employee (M = 2.50, SE = 0.08), $F(1, 991) = 385.15$, $p < .001$, $\eta_p^2 = .280$. Follow-up analyses revealed that each country sampled exhibited the same pattern of ratings, all $\eta_p^2 > .15$. With this cross-cultural evidence for our assumption, we used this context to experimentally test our hypothesis that the equal distribution of resources is deemed less fair when the resource is a medium of exchange than when the resource derives its value from use.

Experiment 1

If the relational model invoked by a resource is what determines allocation preferences, then in the economic domain of an employment context, one should be able to observe variation in resource-allocation preferences depending on the resource being allocated. We first tested the effect of using a medium of exchange that invokes market pricing, examining the resources of both money and credit-card reward points, which we defined in terms of a medium of exchange (i.e., points exchangeable for goods and services). We compared these two resources, which are both a medium of exchange, with standard in-kind goods that have their value in use (i.e., time and food). Furthermore, we manipulated the size of the resource to be allocated as a way to assess whether the amount of the resource being allocated influences preferences for equality.

Method

Participants. Two hundred sixty-eight participants were recruited from a nationwide database maintained by a private university.

Design and procedure. Participants were asked to imagine that a division manager had engaged them as an outside consultant to determine the fair allocation of resources among 10 employees whose yearly sales differed from one another (number of associate sales ranging from 10,000 to 100).

Manipulation. Participants were randomly assigned to different resource conditions, which varied the type and the size of the resources to be allocated. We experimentally varied the resource type to be money (dollars), points (credit-card reward points), time (vacation days), or food (boxes of chocolate). Additionally, participants were randomly assigned to one of two size conditions, with amounts that differed by a factor of 2 (i.e., $20,000 or $40,000; 20,000 or 40,000 credit-card points redeemable for goods and services; 20 or 40 vacations days; 20 or 40 boxes of chocolate).

Scenario. Participants read the following description:

> The president of Megacorp (a medium-sized telecommunications firm that does most of its business in the Midwest) received a report about the performance of the different divisions of his company. The sales division did much better than projected for this fiscal year and because of the high level of sales the president has given the division manager [resource type and size] to distribute among the division's 10 frontline sales associates.

Preference for an equality allocation. On a 9-point scale (from 1, *extremely unfair*, to 9, *extremely fair*), participants rated the allocation plan to "give an equal amount of the [resource type] to each sales associate."

Results and discussion

We conducted a 4 (resource type) × 2 (resource size) analysis of variance on participants' fairness ratings. Results revealed a significant main effect of resource type, $F(3, 260) = 4.95$, $p = .002$, $\eta_p^2 = .05$ (see Table 1). Allocating the resource equally was considered less fair when the resource was a medium of exchange (money or points) than when the resource had value in use (time or food). No significant effect of resource size emerged, $F(1, 260) = 0.57$, $p = .45$, $\eta_p^2 = .002$, and the interaction of resource size by resource type was not reliable, $F(3, 260) = 1.02$, $p = .38$, $\eta_p^2 = .012$. Thus, doubling the size of the resource did not have an effect on allocation preferences for any of the resources, including money. Although it is possible that participants assumed that each additional unit of an in-kind good had a greater diminishing marginal return to each individual than did each additional unit of a medium of exchange, this possibility was unlikely given that allocating a larger pool of these resources failed to increase preferences for equality.

Experiment 2

In our second experiment, we directly manipulated the degree to which credit-card reward points were a medium of exchange in the market in order to test whether the degree to which a resource is a medium of exchange is a causal variable in allocation preferences. Our manipulation held all other properties of the resource constant (i.e., in all conditions, the points were the same unit of account and store of value). Credit-card reward points are a medium that can be directly manipulated to change the extent to which the resource may be exchanged for goods and services. This experiment employed a modified version of the materials used in the previous experiment, but compared participants' allocation preferences in experimental conditions that differed only in what 2,000 credit-card reward points could be exchanged for. By using credit-card reward points as the resource to be allocated, we were able to precisely vary the extent to which the resource was a medium of exchange in the market while holding constant the degree to which the resource was a unit of account and a store of value.

Table 1. Rated Fairness of Egalitarian Allocation as a Function of Resource Type in Experiment 1

Resource	Fairness rating
Money ($n = 48$)	5.46_a (1.58)
Credit-card reward points ($n = 53$)	5.93_a (1.85)
Time ($n = 88$)	6.63_b (2.07)
Food ($n = 79$)	6.66_b (2.21)

Note: Standard deviations are given in parentheses. Participants rated the fairness of equal distribution on a 9-point scale that ranged from 1 (*extremely unfair*) to 9 (*extremely fair*). Means not sharing a subscript differ at the .05 level as determined by an independent-samples *t* test.

Method

Participants. Four hundred twenty-seven participants were recruited from the same nationwide database used in the previous experiment.

Design and procedure. Participants read a modified version of the materials used in the previous experiment, but in this experiment, the resource was always 2,000 credit-card reward points, and we varied only what the points were exchangeable for. Participants were told that each point had a purchasing power of $1. We compared participants' evaluations of the fairness of distributing the points equally among 10 employees independently of their input to the company. The employees' sales differed in the same way as in the previous experiment.

Manipulation. Participants were randomly assigned to a condition in which the credit-card reward points were exchangeable for four different types of goods (books, electronics, movies, or music) or to a condition in which the points were exchangeable for only one of those same four types of goods. Participants assigned to the four-resources condition were told, "These credit-card reward points are redeemable for all books, music, movies, and electronics." Participants in the one-resource conditions were told that the credit-card reward points were redeemable for only one of the four resources (i.e., "these credit-card reward points are redeemable for only books," "these credit-card reward points are redeemable for only music," "these credit-card reward points are redeemable for only movies," or "these credit-card reward points are redeemable for only electronics").

Preference for an equality allocation. On a 9-point scale (from 1, *extremely unfair*, to 9, *extremely fair*), participants rated the allocation plan to "give an equal amount of the 2,000 credit-card reward points to each sales associate."

Monetary value of points. After the fairness evaluation, participants indicated how much of their own money they would bid to purchase the 2,000 credit-card reward points in an eBay-style auction. This response served as an indicator of the subjective value of the credit-card reward points.

Results and discussion

The omnibus analysis of variance on participants' ratings of fairness varied significantly across resource conditions, $F(4, 402) = 2.45$, $p < .05$, $\eta_p^2 = .024$. Table 2 reports the means and standard deviations for all conditions. A planned contrast showed that participants exhibited a greater preference to allocate the points equally when the points were redeemable for only one type of good than when the points were redeemable for multiple types of goods, $F(1, 405) = 8.95$, $p = .003$, $\eta_p^2 = .022$.

Resource condition had no significant effect on monetary bid values (Table 2). Consistent with the finding in the first experiment that the value of a resource was unrelated to allocation preferences, monetary bid values for the credit-card reward points were uncorrelated with participants' preference

Table 2. Rated Fairness of Egalitarian Allocation and Monetary Bids for Credit-Card Points as a Function of Resource Exchangeability in Experiment 2

Exchangeability of credit-card points	Fairness rating	Bid for points ($)
Four resources (*n* = 155)	5.56_a (1.99)	60.39_a (65.19)
One resource (*n* = 272)	6.18_b (2.02)	50.74_a (64.95)
Books (*n* = 54)	6.06 (2.09)	49.20 (61.54)
Electronics (*n* = 74)	6.09 (1.96)	61.97 (79.87)
Movies (*n* = 67)	6.36 (1.87)	53.15 (58.27)
Music (*n* = 77)	6.19 (2.17)	38.99 (55.25)

Note: Standard deviations are given in parentheses. Participants rated the fairness of equal distribution on a 9-point scale that ranged from 1 (*extremely unfair*) to 9 (*extremely fair*). Participants also indicated the maximum amount of money (U.S. dollars) they would bid for 2,000 credit-card points in an eBay-style auction. Within a column, means with different subscripts differ at the .05 level as determined by an independent-samples *t* test.

for equal allocations, $r = -.03$, $p = .56$. This study demonstrated that the more a resource had the properties of being a true medium of exchange in a market, the less fair participants considered a plan to allocate the resource equally among individuals independently of their inputs.

General Discussion

These two experiments provide support for the hypothesis that when a resource invokes the market by being a medium of exchange, preferences for egalitarian distributions of the resource decrease. Moreover, the results of our Experiment 2 indicate that the extent to which a resource is a medium of exchange is a causal variable in fairness-allocation preferences. Our manipulation of the degree to which a resource could be exchanged for goods mimicked the properties of exchange that department stores imposed on gift certificates when they were first introduced at the beginning of the 20th century. In order to distinguish the gift certificate as a resource distinct from a cash transfer, department stores designated a specific type of merchandise (e.g., gloves and shoes) for which a gift certificate could be redeemed (Zelizer, 1994).

All resources are not created equal, and we found that resources invoking the market by being a medium of exchange diminished preferences for egalitarian distributions. When people seek to have individuals accept egalitarian distributions of resources as fair, it may be more effective to focus on the distribution of specific goods that have value in use than on the distribution of money. In both developed and developing countries, the percentage of gross domestic product that is redistributed through in-kind transfers, such as food stamps or housing subsidies, is similar (Currie & Gahvari, 2008). Often it is assumed that people prefer the redistribution of wealth to occur through in-kind transfers, so that the proper use of funds can be ensured (even where cash transfers are more efficient; Currie & Gahvari, 2008; Murray, 1994). However, the current studies suggest that the relational models associated with the resource being distributed may play an important role in how the public understands fairness.

Declaration of Conflicting Interests

The authors declared that they had no conflicts of interests with respect to their authorship and/or the publication of this article.

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