

# ***Self-Serving Motivations of High- and Low-Income Individuals in Public Goods Provisions***

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## **Overview**

Voluntary contributions mechanisms (VCMs) are widely used as an experimental tool to study individual giving in public goods settings. Using those mechanisms, individuals voluntarily pay money into an account to help finance the public good. While economic theory predicts predominant free-riding behavior under those mechanisms, there is ample experimental and real-world evidence of significant positive contributions in VCMs. This fact has shifted interest towards determining the main motivations that drive voluntary contributions to public goods (Andreoni 1995b; Sugden 1984; Andreoni 1990; Fehr and Gächter 2002; Palfrey and Prisbrey 1997; Keser and Van Winden 2000).

Despite the plethora of experimental research on VCMs, little has been done to investigate the interaction between high- and low-income individuals in this setting, let alone explain changes in behavior resulting from the presence of the opposite income type. Moreover, little is known about behavior in situations where individuals in the same community carry different valuations for the public good in question. To this end, this study investigates the behavior in VCMs of individual with heterogeneous incomes playing separately and in mixed groups with homogeneous and heterogeneous relative returns from the public good. This investigation will provide a better understanding of the dynamics surrounding the provision of public goods in richer and poorer neighborhoods. It also explains the interaction between high- and low-income individuals and changes in their behavior resulting from different expectations regarding their relative gain from the provision of the public good.

## **Methods**

A total of 140 undergraduate students were recruited to participate in the experiment, which consisted of a baseline and three treatment groups. Subjects were paid \$5 for their participation plus the amount of any earnings made during the experiment. They were randomly split into high- and low-income types, where each subject participated in twelve rounds of the public goods game (2 practice and 10 real rounds). High-income type individuals were endowed with 750 tokens in each round, while low-income type individuals were endowed with 250 tokens in each round. Participants were divided into groups of 4 members, where each group played the public goods game separately. In each round, subjects were required to decide how to divide their endowments between two accounts: a private and a public account. Participants were explained that each token allocated to the private account yields 1 cent only to the person who invested it, while each token allocated to the public account yields a return less than one cent to all members of the group.

The high- and low-income types played independent of each other in the baseline group, hereafter *separated groups, homogeneous return* (SHR). That is, each four-member group was entirely made up of either high-income or low-income individuals. Subjects were aware that each member in their group received the same number of tokens in each round (250 for low-income or 750 for high-income individuals). Also, within each group, every token that any member invests in the public account yielded half a cent to each member of the group (i.e., the MPCR was 0.5 for all members in the baseline treatment).

In the other three treatments, the high- and low-income types were mixed together in the same group, where each group was made up of 2 high-income and 2 low-income individuals. The participants were aware that the group members had different endowments, but they were not given information on the individual endowments of each member in the group. However, they knew their own endowment and the average endowment of the group (including their own), which was 500 tokens in all cases. Hence, they were able to classify themselves as belonging to the high- or low-income types. The first treatment, hereafter *mixed groups, homogenous return* (MHR), was identical to the baseline treatment in that the MPCR was equal to 0.5 for all members. The only difference was the group composition.

In the second treatment, *mixed groups, increasing return* (MIR), the MPCR was directly proportional to the initial endowment, meaning that high-income individuals gained more than low-income individuals from every token invested in the public account. The participants were clearly explained that their return from every token that any of their group members invests in the public account is positively related to their endowments. The instructions also specified the individual MPCR, which was equal to 0.75 for high-income individuals and 0.25 for low-income individuals. Finally, in the third treatment, *mixed groups, decreasing return* (MDR), the MPCR was inversely proportional to the initial endowment, meaning that low-income individuals gained more than high-income individuals from every token invested in the public account. Again, this was clearly explained to the subjects and they were given their individual MPCR, which was 0.25 for high-income individuals and 0.75 for low income individuals.

## Results and Conclusion

On average, low-income subjects displayed more cooperative behavior in the presence of the high-income type, but only in situations where this presence carried potential advantages to them. On the other hand, high-income subjects displayed more self-centered behavior in the presence of the low-income type when their presence carried potential disadvantages to them. Moreover, there was evidence of free-riding behavior among both income types, which stimulated the structural modeling of different behavioral categories within each income type and the estimation of the main characteristics of those categories.

The overall behavior of low-income individuals can be well explained by the presence of *free-riders*, who in most cases contribute very small amounts to the public good, and *opportunists*, who strategically try to attract and benefit from higher contributions by the high-income type. As for high-income individuals, their behavior was explained by the presence of *free-riders* and *selfists*, who deliberately try to segregate from the low-income type mainly due to a self-centered interest coupled with a sense of caution. However, it seems that the low-income type has a substantially higher propensity to free ride, which might justify the inclination towards self-interest exhibited by high-income individuals.

In conclusion, this study provides insights on the motivations driving the behavior of high- and low-income individuals in VCMs. The value of this paper derives from its relevance to real-world situations and its usefulness to policy makers considering public good provisions in neighborhoods with varying income levels. While more work might be necessary to provide a better understanding of the forces that govern behavior in situations with heterogeneous income levels and relative returns, this essay serves as a first step in uncovering important ways of targeting the critical elements that can help enhance the efficiency of VCMs in those settings.

## References

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