"Do the Poor Pay More: Is the U-shaped Curve Correct?"

Paul G Schervish and John J Havens
Published in
Nonprofit and Voluntary Sector Quarterly
Vol. 24, No. 1, pp 79-90
Spring 1995
EDITOR'S NOTES

SYMPOSIUM

Theory of the Third Sector
Jun Van Til, Editor

Theories and Institutions
Peter Dobkin Hall

Theories of the Nonprofit Sector: Three Issues
Helmut K. Anheier

Commons: Can This Be the Name of “Thirdness”?
Roger A. Lohmann

Some Thoughts on Theory Development in the Voluntary and Nonprofit Sector
Jacquelyn Thayer Scott

ARTICLES

Novel Funding for a Novel Nonprofit Sector:
Latin America's Private Research Centers
Daniel C. Levy

Volunteering and Charitable Giving: Do Religious and Associational Ties Promote Helping Behavior?
Elton F. Jackson, Mark D. Buchmeier, James R. Wood, Elizabeth A. Craft

Do the Poor Pay More? Is the U-Shaped Curve Correct?
Paul G. Schervish, John J. Havens

REVIEW

A Fierce Green Fire: The American Environmental Movement
by Philip Shabecoff

REVIEWED BY JAMES TOBER
Do the Poor Pay More: Is the U-Shaped Curve Correct?

Paul G. Schervish, John J. Havens

We first show where the U-shaped curve of the relationship between income and charitable giving, which is often construed as evidence that the poor pay more than do the wealthy, comes from. We then recalculate the relationship between income and giving, showing why the data do not support the contention that the poor contribute a greater percentage of their income to philanthropy.

In recent years, researchers using a variety of data sources have documented the U-shaped relationship between percent of income contributed to philanthropy and household income in the United States (Hodgkinson & Weitzman, 1988, 1990; Hodgkinson, Weitzman, Noga, & Gorski, 1992). The U-shaped curve indicates that low- and high-income households contribute larger proportions of their incomes than do middle-income households, and low-income households contribute higher proportions than do high-income households. This pattern is mirrored in a 1992 news release by INDEPENDENT SECTOR that reports that contributing households with incomes under $10,000 gave 3.6 percent of their income, households with incomes of $100,000 or more contributed 2.5 percent, and households with incomes between $60,000 and $99,999 contributed less than 2 percent. In summary, the INDEPENDENT SECTOR news release states, “Generally, those with lower incomes tend to give proportionately more than those with higher incomes” (p. 1).

These quantitative results are often cited both within the community of philanthropy and by those interested in philanthropy. For instance, a recent column by Nielsen (1992) in The Chronicle of Philanthropy is published under the headline “A Reason to Have Fund Raisers: Our Stingy Rich People.” Drawing

Note: The authors wish to thank the T. B. Murphy Foundation Charitable Trust, the Lilly Endowment, and the Indiana University Center on Philanthropy for their support of this research. We also thank Virginia A. Hodgkinson and Stephen M. Noga for providing the INDEPENDENT SECTOR survey data and for sharing their technical expertise, and Carl Milofsky for his valuable suggestions.
on various studies, including the 1992 report by INDEPENDENT SECTOR (Hodgkinson, Weitzman, Noga, & Gorski, 1992) and an earlier study on bequests (Johnson, 1990), Nielsen concludes that "we should be deeply distressed, indeed outraged, by the comparative niggardliness of our wealthy, especially when social needs are so acute and we have had nearly two decades in which the accumulation of private wealth has reached unheard-of totals" (1992, p. 41). Again, writes Nielsen, "the truth is that poor and middle-class Americans are remarkably generous—even though their gifts involve some degree of sacrifice" (1992, p. 41). However, when we scrutinize the data more carefully, the proper conclusion is very different from Nielsen's: on nonnormative, empirical grounds, higher-income households are not any more stingy than their lower-income counterparts, nor are the poor and middleclass any more generous than their higher-income counterparts.

Johnson's conclusion that only 20 percent of Americans with estates of $500,000 or more leave charitable bequests is misleading. If we take into account the fact that most wealthy people who die before their spouses leave their assets to their spouses and that most bequests in such cases are made by the surviving spouse, then the appropriate base for determining the rate of bequests is not the number of bequests per number of wealthy individuals but per number of wealthy families. If 80 percent of wealthy individuals are involved in a marriage, then the number of wealthy families who leave bequests is closer to 35 percent than to the 20 percent estimated when each wealthy individual is considered separately.

This article reports selected findings from a larger research project involving the quantitative investigation of societal, familial, and individual characteristics that motivate philanthropic behavior. The findings focus on the fundamental question "Do the poor (lower-income households) pay more than the wealthy (higher-income households)?" The INDEPENDENT SECTOR data do not directly measure wealth, but rather household gross income. The fact concerning the magnitude of giving by household income are not widely known, leaving researchers, the press, and the public with a false imagery of the generous poor and miserly rich.

We present what we consider to be the actual relationship between income and philanthropic giving from two perspectives. In the first section, we review the magnitude of philanthropic contributions made by various income groups, using four macro measures of contribution—that is, measures summarizing the giving patterns averaged over groups of households. In the second section, we present findings from micro, individual-household data to convey the relationship between household gross income and the percentage of income contributed to philanthropy. We first show where the U-shaped curve, often construed as evidence that the poor pay more than the wealthy, comes from (Nielsen, 1992; INDEPENDENT SECTOR, 1992; Rudney & Rudney, 1992). We then recalculate the relationship between income and giving, showing why the data do not support the contention that the poor contribute a greater percentage of their income to philanthropy.

Methodology


To increase the likelihood that the respondent knew the household income and contributions, we included in the analysis only cases where the respondent reported being head of the household and where household income was reported. (One lower-income case was also eliminated because its reported characteristics seemed too inconsistent to be true. The respondent was a young male head of household with no high school diploma, married with more than four children, with a gross household income of $7,000 to $10,000 per year and contributing approximately $8,000 distributed among most of the fourteen categories of philanthropy.) The size of the resulting samples was thereby reduced in 1990 from the original 2,727 to 2,253 cases, or 83 percent of the original sample, and in 1992 from the original 2,671 to 2,112 cases, or 79 percent of the original sample. In addition, 1989 dollar figures reported in the 1990 survey were adjusted for inflation to be comparable to corresponding 1991 dollar figures reported in the 1992 survey. In the macro analysis, the group values were adjusted for bracket creep due to inflation. No bracket-creep adjustment was required in the micro-level analysis. Several other methodological issues regarding the INDEPENDENT SECTOR data, which we presented in a prior paper and its appendices (Schervish & Havens, 1992), are not repeated here.

Four Macro-Measures of Contribution by Income Level

We analyzed contribution data for each of the thirteen categories of gross household income as defined by the INDEPENDENT SECTOR data (Table 1). The analysis answers four questions about the relative magnitude of giving by households at different income levels.

Contributions by Households at Different Income Levels. Households in the upper five income categories ($40,000 or more 1991 dollars) contributed 65 percent (or $45.6 billion) of the total reported contributions in 1989 and 66 percent (or $40.7 billion) of the total reported contributions in 1991. Households in the bottom eight income categories contributed 35 percent (or $24.7 billion) of the total reported contributions in 1989 and 34 percent (or $20.5 billion) of the total reported contributions in 1991 (see Table 1, Panels 2 and 4 for details by income category).

Average Contribution of Households at Different Income Levels. The average contribution per household rises from $79 in 1989 and $114 in 1991 for households earning less than $7,000 per year to about twenty times as
Table 1. Selected Measures of Household Contributions by Household Income, 1989 and 1991

<table>
<thead>
<tr>
<th></th>
<th>Under $7,000</th>
<th>$7,000-$9,999</th>
<th>$10,000-$14,999</th>
<th>$15,000-$19,999</th>
<th>$20,000-$24,999</th>
<th>$25,000-$29,999</th>
<th>$30,000-$34,999</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel 1: Sample size</td>
<td>137</td>
<td>137</td>
<td>180</td>
<td>211</td>
<td>205</td>
<td>198</td>
<td>197</td>
</tr>
<tr>
<td>Panel 2: Total annual contributions (billion 1991 dollars)</td>
<td>1989</td>
<td>0.3</td>
<td>1.0</td>
<td>2.4</td>
<td>2.5</td>
<td>4.2</td>
<td>4.0</td>
</tr>
<tr>
<td>1991</td>
<td>0.8</td>
<td>0.8</td>
<td>1.8</td>
<td>4.0</td>
<td>3.0</td>
<td>3.7</td>
<td>3.3</td>
</tr>
<tr>
<td>Panel 3: Average contribution per household</td>
<td>1989</td>
<td>$79</td>
<td>$298</td>
<td>$383</td>
<td>$397</td>
<td>$700</td>
<td>$661</td>
</tr>
<tr>
<td>1991</td>
<td>$114</td>
<td>$149</td>
<td>$243</td>
<td>$508</td>
<td>$410</td>
<td>$522</td>
<td>$570</td>
</tr>
<tr>
<td>Panel 4: Cumulative annual contributions (percentage)</td>
<td>1989</td>
<td>0.5%</td>
<td>2.0%</td>
<td>5.4%</td>
<td>8.9%</td>
<td>14.9%</td>
<td>21.4%</td>
</tr>
<tr>
<td>1991</td>
<td>1.4%</td>
<td>2.6%</td>
<td>5.3%</td>
<td>12.0%</td>
<td>16.9%</td>
<td>22.9%</td>
<td>28.3%</td>
</tr>
<tr>
<td>Panel 5: Cumulative percentage of households</td>
<td>1989</td>
<td>5.5%</td>
<td>11.0%</td>
<td>19.5%</td>
<td>27.9%</td>
<td>37.1%</td>
<td>43.5%</td>
</tr>
<tr>
<td>1991</td>
<td>8.9%</td>
<td>15.1%</td>
<td>23.8%</td>
<td>33.3%</td>
<td>41.9%</td>
<td>50.4%</td>
<td>57.4%</td>
</tr>
<tr>
<td>Panel 6: Percentage of contribution</td>
<td>1989</td>
<td>0.5%</td>
<td>1.5%</td>
<td>3.4%</td>
<td>3.6%</td>
<td>5.9%</td>
<td>6.5%</td>
</tr>
<tr>
<td>1991</td>
<td>1.4%</td>
<td>1.3%</td>
<td>2.9%</td>
<td>6.5%</td>
<td>4.8%</td>
<td>6.0%</td>
<td>5.4%</td>
</tr>
<tr>
<td>Panel 7: Percentage of total income</td>
<td>1989</td>
<td>0.8%</td>
<td>1.1%</td>
<td>2.8%</td>
<td>3.9%</td>
<td>5.5%</td>
<td>0.2%</td>
</tr>
<tr>
<td>1991</td>
<td>1.3%</td>
<td>1.4%</td>
<td>3.0%</td>
<td>4.4%</td>
<td>5.3%</td>
<td>0.3%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Panel 8: Share of contribution per share of income</td>
<td>1989</td>
<td>0.60</td>
<td>1.17</td>
<td>1.22</td>
<td>0.92</td>
<td>1.08</td>
<td>1.04</td>
</tr>
<tr>
<td>1991</td>
<td>1.10</td>
<td>0.87</td>
<td>0.97</td>
<td>1.47</td>
<td>0.91</td>
<td>0.95</td>
<td>0.87</td>
</tr>
</tbody>
</table>

Note: Income is reported in constant 1991 dollars. 
much ($1,963 in 1989 and $2,208 in 1991) for households earning $100,000 or more (see Table 1, Panel 3).

**Percentage of Total Contributions Made by the Highest Income Quintile Compared with Those by the Lowest Income Quintile.** In 1989, the 20 percent of households with the lowest incomes (less than $15,800 annual household income) contributed 5.7 percent of total contributions and the 20 percent of households with the highest incomes ($49,020 or above) contributed 45.6 percent of the total. Similarly, in 1991 the 20 percent of households with the lowest incomes (less than $12,815) contributed 4.2 percent of contributions and the 20 percent of households with the highest incomes ($48,675 or more) contributed approximately 44.5 percent (see Table 1, Panels 4 and 5). It is interesting to note in Panel 5 that more than half the households have an annual gross income of less than $35,000 (1991 dollars).

**Comparison of the Share of Total Contributions Made by Each Income Category with its Share of Total Income.** A rather infrequently used macro measure, shown in Panel 8 of Table 1, is the ratio of the percentage of total contributions made by each income group relative to the percentage of total income earned by that group. For example, a share score of 1.28 for households earning $100,000 or more in 1989 indicates that these households contributed 28 percent more of the contributions than their share of income. A score of .60 for households earning less than $7,000 in 1989 indicates that these households contributed 40 percent less of the contributions than their share of income.

A scan of the scores for 1989 and 1991 (Table 1, Panel 8) indicates a rough equality of contribution scores in both the lower and higher income categories and a modest tendency for households in middle income categories to contribute less than their share of income. Given the fluctuations in the micro level data (not reported here), our general conclusion is that there is relatively little difference in the share score among income groups.

**Discussion.** The imagery of stingy rich and generous poor is not sustained in a macro analysis of the data. More than two-thirds of the total contributions (more than $40 billion) are made by the upper one-third of households. On average, households at higher income levels make contributions that are an order of magnitude larger than those of households at lower levels. The highest income quintile contributes more than nine times the amount of the lowest income quintile. On all of the first three measures, which do not take income explicitly into account, the poor, as a group, contribute a small fraction of what the wealthy contribute. The fourth, a relative measure, compares share of contributions to share of income. We conclude that there is rough equality among all income groups based on this measure, with at most a modest tendency for middle-income households to contribute less than their share of income. This result contradicts the imagery of the caring poor contributing more than the uncaring rich. Both groups appear equally caring.

---

**Three Micro-Measures of Contribution by Household Income**

In this section, we analyze micro-level data to reexamine the findings, which appear to support the conclusion that the poor (that is, low- and middle-income households) pay more than the wealthy (high-income households).

**Revisiting the U-Shaped Curve.** The first step is to reproduce the oft-cited U-shaped curve (see Figure 1 and Table 2, Panels 1 and 2).

We have plotted the data for contributions in 1989 and 1991 on the same figure because incomes and contributions are both adjusted to 1991 dollars. The points on the figure represent the average percentage of household gross income contributed by household income for each year. All of these averages are based on more than 100 households (see Table 1, Panel 1). The U-shaped line is a third-order polynomial estimated from the data using ordinary least-squares regression. It shows the trend relationship in the data and is statistically different from a horizontal line (representing no difference by income) at the .0001 level of significance.

![Figure 1. Percentage of Household Income Contributed, by Household Income](image-url)
Table 2. Percentage of Household Income Contributed, 1989 and 1991

<table>
<thead>
<tr>
<th></th>
<th>Under $7,000</th>
<th>$7,000–$9,999</th>
<th>$10,000–$14,999</th>
<th>$15,000–$19,999</th>
<th>$20,000–$24,999</th>
<th>$25,000–$29,999</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel 1: Household income in 1991 constant dollars (plotted on x-axis)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1989</td>
<td>$5,357</td>
<td>$9,107</td>
<td>$13,392</td>
<td>$18,749</td>
<td>$24,106</td>
<td>$29,463</td>
</tr>
<tr>
<td>1991</td>
<td>$5,000</td>
<td>$8,500</td>
<td>$12,500</td>
<td>$17,500</td>
<td>$22,500</td>
<td>$27,500</td>
</tr>
<tr>
<td>Panel 2: Annual average percentage of income contributed (only contributing households)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1989</td>
<td>3.0%</td>
<td>4.7%</td>
<td>4.3%</td>
<td>2.9%</td>
<td>3.2%</td>
<td>3.0%</td>
</tr>
<tr>
<td>1991</td>
<td>5.0%</td>
<td>3.4%</td>
<td>3.0%</td>
<td>4.3%</td>
<td>2.5%</td>
<td>2.7%</td>
</tr>
<tr>
<td>Panel 3: Rate of participation in giving (percentage of all households)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1989</td>
<td>46.6%</td>
<td>59.1%</td>
<td>64.9%</td>
<td>67.7%</td>
<td>82.3%</td>
<td>75.1%</td>
</tr>
<tr>
<td>1991</td>
<td>42.9%</td>
<td>51.0%</td>
<td>65.2%</td>
<td>68.1%</td>
<td>72.7%</td>
<td>73.0%</td>
</tr>
<tr>
<td>Panel 4: Annual average percentage of income contributed (all households)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1989</td>
<td>1.4%</td>
<td>2.7%</td>
<td>2.8%</td>
<td>2.0%</td>
<td>2.6%</td>
<td>2.2%</td>
</tr>
<tr>
<td>1991</td>
<td>2.2%</td>
<td>1.8%</td>
<td>1.9%</td>
<td>3.0%</td>
<td>1.8%</td>
<td>2.0%</td>
</tr>
</tbody>
</table>

Note: Income is reported in nominal dollars.

The left end of the curve is higher than the right end, indicating that lower-income households contribute a greater proportion of their income than do higher income households; the low portion of the curve indicates that middle-income people give less than both lower- and higher-income households.

It might appear from this reconstruction that the poor do pay more. However, when we look more closely at the procedures used for analyzing these data we find a critical flaw: the subpopulation of contributories is treated as if it were the entire population. The U-shaped curve describes only the households in each income category that made a contribution, and ignores all other households that contribute nothing. Thus, the data do not describe all households—just those who reported making contributions.

Participation Rates. Were there roughly equal proportions of households making contributions in each income group, the U-shaped pattern would be maintained, albeit shifted downward, in the population as a whole. However, the combined data for both survey years show that the participation rates are substantially lower and statistically significant (p < .0001) for lower-income households than for higher-income households, ranging from less than 66 percent for the three lowest-income groups to more than 88 percent for the three highest-income groups (see Table 2, Panel 3). As we can see from Figure 2, the participation rates for each income category and the least-squares (logarithmic) trend curve for participation data in 1989 and 1991 show an increasing level of participation as income rises.

Recalculating the Relationship. The difference in participation rates implies that the relationship between income and percentage of income contributed is different in the population as a whole than the often-cited U-shaped curve. When we include all households in the analysis, the U-shaped curve is flattened to a wavy, relatively flat curved line (the lower curve in Figure 3). This wavy curve represents the statistical trend in the data when all households are included (see Table 2, Panel 4). This curve is not statistically significant (even at the .2 level); that is, it is not different from a horizontal straight line. Thus, from a statistical viewpoint, we can conclude that households at all income levels contribute roughly the same percentage of their incomes to philanthropy, even though there is an uptick at the right side.

Discussion. As in the macro-level analysis, the micro-level analysis does not support the contention that the poor, as a group, donate a higher percentage of their income than do the wealthy. The data suggest that there is little difference among income groups in the percentage of income contributed. Given this conclusion, the original U-shaped curve does, however, tell us something important: the structure of the amount given, as a percentage of income, is different among the poor than among the wealthy. Many of the poor contribute
nothing whereas nearly all of the wealthy contribute something, but contributors who are poor give a greater share of their relatively low incomes, on average, than do contributors who are wealthy. Is this because there is a large portion of the wealthy who give only token contributions (analogous to poor households that give nothing) while a smaller proportion make quite large contributions, or are the wealthy more uniform in their giving behavior? Our research has not yet addressed this question.

Conclusion

In this article, we attempt to examine rather carefully whether there is a factual basis for the prevalent imagery of the very generous poor making large contributions and the rather stingy wealthy making small to modest contributions relative to their incomes. Using household income as a rough proxy for wealth, we conclude that there is no factual basis for this imagery. As one would expect, the wealthy contribute many times more dollars than do the poor and the wealthy as a group contribute approximately the same percentage of their gross incomes as do the poor. As a percentage of disposable income (gross income less tax liabilities plus tax credits) and even more as a percentage of income adjusted for the value of all government transfers and tax liabilities, we presume that empirical analysis would show that the wealthy contribute substantially more than the poor.

This still leaves open the normative issue of whether the wealthy should give even greater amounts to philanthropy. It also leaves open the issue of sacrifice: does the average contribution of the poor represent a greater degree of commitment than the average contribution of the wealthy? Quantitative analysis can inform but not settle these two issues, but it can help settle the statistical issue of relative generosity.

If we limit our analysis to just the subpopulation of contributors, our findings are consistent with anecdotal reports of some poor households giving a substantial portion of their incomes to philanthropy. However, a full inspection of the population data makes clear that at least a comparable number of poor households contribute nothing at all. This fact, coupled with the fact that
nearly all wealthy households do contribute to philanthropy, results in the finding that when both contributing and noncontributing households are considered, the percentage of gross income contributed to philanthropy is roughly the same at all income levels. From this finding we can only conclude that generosity is not strongly related to income and, hence, must be related to other social and personal characteristics that cut across the financial spectrum. Searching for these positive and perhaps class-blind sources of generosity, rather than perpetuating a questionable imagery, should henceforth be the subject of our deliberations.

References


Paul G. Schervish is associate professor of sociology and director of the Social Welfare Research Institute at Boston College.

John J. Havens is senior research associate at the Social Welfare Research Institute at Boston College.