

In both models, the demand for volunteer labor -- i.e., labor at a zero wage rate -- is assumed to be infinitely elastic, so that the model is a supply function rather than a demand or hybrid supply/demand function.<sup>7</sup> (While this assumption may be a useful simplification for modeling, it seems to ignore an organization's non-wage costs of "hiring" volunteers in terms of office space, materials, liability, training, and other costs.) The authors also simplify their model by assuming that the demand for an individual's paid or market labor is infinitely elastic at the prevailing wage.<sup>8</sup>

Menchik and Weisbrod point to five variables affecting volunteer labor supply:

- (1) The opportunity cost or own-price of volunteer labor -- the authors use a proxy of the after-tax wage rate;
- (2) Full income, the potential income earned from supplying a maximum number of hours of labor at the market wage rate, plus non-earned income;
- (3) The cross price of donating money, determined by the tax rate effect on income depending upon whether or not the individual itemizes deductions;
- (4) An individual preference vector, associated with the utility derived from income and making charitable contributions; and
- (5) Governmental spending on social welfare, which could have the potential of crowding out volunteer labor if governmental spending supplies the same services that volunteers would provide.<sup>9</sup>

Menchik and Weisbrod consider the interactions of these five variables affecting volunteer labor supply in the context of their consumption and investment models and to assess whether gifts of time are complements or substitutes to gifts of money.

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<sup>7</sup> Ibid., 161.

<sup>8</sup> Ibid.

<sup>9</sup> Ibid.

### The Consumption Model

The consumption model treats volunteering as an ordinary consumer good.<sup>10</sup> The individual's utility gained for volunteering an hour's time is presumably equal to the opportunity cost -- the value of an hour of leisure time plus any monetary cost associated with an alternative activity of equal utility.

Under the consumption model, exogenously determined variables are the individual's wage rate  $w$ , endowment of available time  $T$  (16 hours per day), nonlabor income  $y$  and a proportional tax rate  $\pi$ . The endogenous variables are hours of leisure time  $t_l$ , hours of volunteer time  $t_v$ , hours of market labor  $t_m$ , ( $t_m + t_v + t_l = T$ ), dollars of money donations to charitable donees  $D$ , and conventional consumption expenditures  $C$ . The individual seeks to maximize utility  $U(t_l, t_v, D, C)$  subject to the budget constraint (assuming the individual itemizes taxes),

$$C = (w(T - t_l - t_v) + y - D)(1 - \pi)$$

written as a Lagrangian function,<sup>11</sup>

$$L = U(t_l, t_v, D, C) - \lambda[(w(T - t_l - t_v) + y - D)(1 - \pi) - C]$$

Menchik and Weisbrod do not explicitly address savings,  $S_v$ , in their model, which could be incorporated as follows,

$$C = (w(T - t_l - t_v) + y - D)(1 - \pi) - S_v$$

$$L = U(t_l, t_v, D, C, S) - \lambda[(w(T - t_l - t_v) + y - D)(1 - \pi) - S_v - C]$$

### The Investment Model

The investment model treats volunteering time as a way to increase the individual's income over time. Supplying volunteer hours increases future income by giving the individual added on-the-job experience (or possibly expanding

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<sup>10</sup> Ibid.

<sup>11</sup> Ibid., 163.

the individual's supply of professional contacts or enhancing the reputation of the individual as an active member of the community).<sup>12</sup> The individual supplies volunteer labor when the expected value of future income gained by volunteering is positive.<sup>13</sup>

The potential earnings of an individual during one of  $N+1$  periods of the individual's life are  $E_i$ , as compared with  $E_i'$  if higher earnings are attained through volunteer experience. An individual maximizing wealth,  $W(E_i)$ , would, in this model, volunteer during the first working age period of his or her life if  $W(E_i') > W(E_i)$  or

$$W(E_i') =$$

$$(T-t_1-t_v)w_0 + \sum_{i=1}^N (T-t_1-t_v)\phi w_i'/(1+r)^i > W(E_i) =$$

$$\sum_{i=0}^N (T-t_1)\phi w_i/(1+r)^i$$

where  $r$  = the interest rate, and  $w$  = the wage rate. The individual will continue to provide volunteer hours as long as the discounted present value of added lifetime earnings from the additional hour of volunteering exceeds its opportunity cost, or the current wage rate.<sup>14</sup>

Menchik and Weisbrod's investment model presumably assumes every individual who has higher potential earnings from volunteering will volunteer. This is a simplified model that, if correct, would in empirical testing demonstrate predictable volunteering among persons relatively young in their professional lives. Intuitively, one would expect to find individuals who do not volunteer even though they would have higher potential earnings by doing so. Thus, the higher potential earnings should be viewed as a necessary but not sufficient condition for volunteering.

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<sup>12</sup> Ibid., 162.

<sup>13</sup> Ibid., 166.

<sup>14</sup> Ibid., 165-166.

### Menchik and Weisbrod's Empirical Approach

Menchik and Weisbrod empirically test the validity of their models using a national survey of philanthropy from 1977 reported by Morgan, Dye and Hybels.<sup>15</sup> Since this survey does not report donor wage rates, Menchik and Weisbrod separately construct estimates of donor wage rates, full income, net-of-tax rate of income (the own price variable), and the cost of donating money (the cross price variable). A vector of proxies for donor tastes was developed using city size, parental characteristics (related to education, religion, and charitable activity), and demographic and life-cycle attributes of the donor (sex, age, marital status, presence and age of children). The dependent variable is the total hours volunteered for a broad range of charitable activities (health, education, social welfare, cultural, and environmental).<sup>16</sup>

The Menchik and Weisbrod regression analysis uses the tobit model because ordinary least squares analysis would be biased due to the large number of respondents with zero hours of volunteer labor. Because of the way the survey data was developed, the authors excluded the following types of records from the data: (1) respondents with no labor earnings in 1973 (because no wage income factors could be determined); (2) respondents with more than one wage-earner (because wage and full income calculations could not be computed for these respondents due to income data being aggregated by household); and (3) respondents with household incomes over \$50,000 (because the authors assume, but do not delineate, a different model of philanthropy that would apply to wealthy individuals).<sup>17</sup>

### Tobit or Probit Econometric Analysis?

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<sup>15</sup> James Morgan, Richard Dye and Judith Hybels, "Results from Two National Surveys of Philanthropic Activity," Research Papers Sponsored by the Commission on Private Philanthropy and Public Needs (Washington: U.S. Department of Treasury, 1977).

<sup>16</sup> Menchik and Weisbrod, 174.

<sup>17</sup> Ibid. 168.

Subsequent to the Menchik and Weisbrod study, Brown and Lankford proposed a Probit econometric approach to modeling volunteer labor.<sup>18</sup> Brown and Lankford's model involves a sequential process, with employment hours assumed to be exogenously determined first, and then volunteering and money contributions being determined based upon various demographic and preference factors of the individual.

Brown and Lankford propose that hours of labor are constrained because individuals commit to paying jobs and often do not have flexibility in determining their own hours of work. Therefore, volunteer labor is constrained by prior job commitments, and the wage rate has less impact on volunteer labor supply decisions. With constrained work hours, Brown and Lankford state, the hourly wage rate no longer measures the opportunity cost of volunteering an hour of time on the margin.<sup>19</sup> In other words, if an individual does not have exogenously determined hours of labor, he or she devotes available time to working until the value of last hour committed to work by the individual (i.e., the wage rate) equals the value of that hour being spent in leisure activity.

The solution to number of hours committed to work is a marginal solution with unconstrained labor hours but not necessarily with labor hours being previously committed to by the individual. Would a person quit a job, because the number of hours of labor are constrained, without taking into consideration more than just the hourly wage (e.g., fixed living costs, job search costs, and other factors)?

Brown and Lankford apply a small new data set and a Probit econometric models to produce a combined volunteer labor supply and money contributions model. They use results of a survey by the University of Florida's Bureau of Economics and Business Research, the Florida Consumer Attitude Survey, conducted in 1984.<sup>20</sup>

Brown and Lankford seek to replicate the Menchik and Weisbrod model, although the Florida data did not allow them

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<sup>18</sup> Eleanor Brown and Hamilton Lankford, "Gifts of Money and Gifts of Time: Estimating the Effects of Tax Prices and Available Time," Journal of Public Economics 47 (1992): 323.

<sup>19</sup> Ibid., 325.

<sup>20</sup> Ibid., 323.

to include family background and local government spending data. When they adjusted the Florida data to conform to the Menchik and Weisbrod approach, the sample size dropped from 632 to 311<sup>21</sup> (Menchik and Weisbrod's sample size was 901)<sup>22</sup>

The Brown and Lankford approach to volunteer labor supply adds interesting considerations to the subject, such as sequential determination of work hours and volunteering. The empirical tests of Menchik and Weisbrod, however, found more significance among their coefficients when using their data set, which was larger than that of Brown and Lankford. Also, despite Brown and Lankford's arguments for assuming labor hours are constrained, most suppliers of labor may over the long term adjust their hours to their approximate personal satisfaction.

For the purposes of this paper, which adds liability risk to a volunteer supply decision model, the Menchik and Weisbrod consideration of investment volunteering is attractive. While individuals have varying risk-averse and risk-seeking attitudes to investment and leisure activity, my view is that an investment-motivated volunteer may be more likely to weigh all risk elements as part of a volunteering decision process than may a consumption-motivated volunteer. Many utility bearing leisure consumption activities -- particularly sports -- incorporate widely recognized risks but nonetheless offer utility to individuals.<sup>23</sup>

Another aspect of adding liability factors to volunteer supply is that Brown and Lankford approach giving money and volunteering simultaneously in their model. I assume there is very little risk imbedded in contributing money to a nonprofit organization relative to the potential for risk while acting on behalf of an organization in a volunteer capacity.

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<sup>21</sup> Ibid.

<sup>22</sup> Menchik and Weisbrod, 175.

<sup>23</sup> To carry this argument to the extreme, one might suggest (but not expect to find), that risk seeking individuals could prefer volunteering in a high liability exposure legal climate.