

Key Menchik and Weisbrod Variables

- FULINC To estimate full income of the survey respondents, wage (or the respondent's estimated value of labor hours if not employed) is multiplied by 2000 hours per year. Full income values approximate but do not match exactly the approach of Menchik and Weisbrod. They also use the 2000 hour multiplier, but their data did not include estimated wages if unemployed. As a proxy for investment income, the following value is added to the individual's earned income: total household income,<sup>40</sup> divided by the number of household members, minus the individual's earned income.<sup>41</sup> Imputed rental income from owner-occupied housing, which Menchik and Weisbrod do estimate,<sup>42</sup> is not included. Higher income respondents are excluded, following Menchik and Weisbrod.<sup>43</sup>
- FULINCSQ The calculated full income value is squared. Full income is tested in two ways by Menchik and

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<sup>40</sup> The respondent's share of household income is determined using the middle of the income range reported, or \$150,000 for the more than \$100,000 range, divided by number of persons in the household. The maximum reportable number of persons in the household is nine. There are 415 respondents who do not report household income, of which 224 provide wage estimates which were used. Eleven respondents do not report number of members of the household, in which cases an estimate is developed using number of children and primary wage earner responses.

<sup>41</sup> The empirical result of this calculation on the data set is as follows: median earned annual income is approximately \$15,200 and median full annual income is approximately \$17,975. Mean earned annual income is \$19,127 and mean full annual income is \$24,016.

<sup>42</sup> Menchik and Weisbrod, 169.

<sup>43</sup> Respondents with full incomes calculated to be over \$100,000 were excluded. This approximately follows Menchik and Weisbrod's exclusion of incomes over \$50,000, considering the rise in the consumer price index between the survey periods.

Weisbrod because they consider it to be a key variable for validating their consumption model. Under their consumption model, with volunteering being a utility bearing activity, a higher income would be expected to increase volunteering.

- NWAGE      As the opportunity cost or own price of volunteering, NWAGE is a proxy for the after-tax wage rate of the individual. NWAGE is what remains after the 1991 federal income tax rate for an individual is assessed against FULINC. Menchik and Weisbrod construct NWAGE from reported household income, hours worked and non-wage income reported by respondents in the data set they used.
- PRICE      The cross price, or the cost of contributing money rather than time, is based upon the individual's income with the tax implications of monetary contributions added. PRICE is calculated in the same manner as NWAGE if the individual reported itemizing taxes in a recent year. If the individual reported not itemizing, PRICE matches the individual's before tax income. Thus, an income tax itemizer's cost of contributing money to a charity is reduced relative to a non-itemizer.
- LOCGOV     State and local governmental expenditures are proxied using the nearest year available electronic database of state and local spending (1993 U.S. Department of the Census data). Per capita state and local government spending is used for this variable (excluding intergovernmental transfers and fund pools which do not differentiate between expenditures and account credits).
- AGE         Individual's age.
- AGESQ      Individual's age squared. Menchik and Weisbrod use a quadratic representation of the individual's age to account for a possibly nonlinear relationship between volunteering and age. Also, age is a key variable in validating Menchik and Weisbrod's investment model, wherein volunteering is expected to diminish as one ages and therefore faces fewer future periods of potential increased wages.

Preference Vector Elements

Again following Menchik and Weisbrod, the following dummy preference variables were used to create a proxy for the individual's tastes:

LCITY	<u>Individual resides in a large city, defined as a municipality with a population of 250,000 or more.</u>
SUBCITY	<u>Individual resides in a suburban, or urban fringe, area.</u>
MCITY	<u>Individual resides in a medium sized city, defined as a municipality with a population between 50,000 and 250,000.</u>
SCITY	<u>Individual resides in a small municipality, with less than 50,000 population.</u>
BACKVOL	Either or both <u>parents volunteered</u> in the community. Menchik and Weisbrod specify for this variable whether or not the individuals parents "contributed regularly" to charitable or religious organizations. <sup>44</sup>
RELIG	<u>Individual attends religious services at least a few times per year.</u> Menchik and Weisbrod used parental participation in religious services once per week or more, data which is not available.
ED	<u>The respondent attended college or graduated from a technical, trade or business school after high school.</u> Menchik and Weisbrod used whether or not the individual's father completed high school, data which is not available.
YGCHILD	<u>Individual lives with a child five years of age or younger.</u>
OTHCHILD	<u>Individual lives with a child between the ages of six and 17 years of age.</u> <sup>45</sup>

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<sup>44</sup> Menchik and Weisbrod, 171.

<sup>45</sup> Menchik and Weisbrod use for this category the ages 5 through 17.

MARRIED     Individual is married.

FEMALE       Individual is female.

Volunteer Liability Variables

STLIAB       This variable is determined based upon the count of exclusions of protection for volunteers in specified legal areas. The Nonprofit Risk Management Center<sup>46</sup> developed a listing of areas of liability concern for volunteers and a state-by-state identification of statutory or legally implied protection exclusions for volunteers for those areas of concern. This analysis considers a "line worker" type of volunteer as opposed to a person serving on a board of directors or as an officer of a nonprofit organization, as liability protections differ for directors and officers. A state's limiting of exposure may be statutory or implied by legal interpretation.

The areas of the law specified by the Center are:

- Bad Faith
- Willful/Intentional Acts
- Recklessness
- Gross Negligence
- Motor Vehicle Liability<sup>47</sup>

The list of states and the count of legal exclusions identified by the Center and used for this empirical analysis is attached (Appendix A)

TBYPOP       This variable measures state liability risk for volunteers using a state litigiousness proxy value

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<sup>46</sup> State Liability Laws for Charitable Organizations and Volunteers, (Washington: Nonprofit Risk Management Center, 1995)

<sup>47</sup> Ibid., 6. Two other areas of law considered by the Center but not included in this analysis is fraud and fiduciary negligence and motor vehicle negligence.

based upon the number of tort filings per 100,000 residents per state in 1992.<sup>48</sup> The rationale for using this value is that the volume of tort lawsuits filed per capita, some of which would be filed against volunteers, would transmit to volunteer labor suppliers a sense of degree of exposure to lawsuits while volunteering. Potential volunteers would acquire this information through the media, from their peers, and through the organizations for which they provide (or consider providing) volunteer labor.

### Results of Regression Analysis

Tobit regression results, and a comparison with the coefficients obtained by Menchik and Weisbrod, are contained in Table I.

### General Observations

The replication of the Menchik and Weisbrod's analysis using the 1992 data did not meet the convenient, consistent statistical significance of those authors' Tobit results. Nevertheless, all coefficients for the key variables identified by Menchik and Weisbrod -- those related to full income, opportunity cost, cross price, age and local government spending -- matched in terms of sign.

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<sup>48</sup> State Court Caseload Statistics, (Williamsburg: National Center for State Courts, 1995), 198-200. Some states vary in their reporting procedures. Data for 34 states and the District of Columbia are reported. Seven of the 34 states have some omissions, and four of the states are reported to have somewhat over-inclusive data.



## Variables Related to Income

In the Menchik and Weisbrod replication, the income related variables generally did not demonstrate predictive value. Full income (FULINC) and wage (NWAGE, the opportunity cost variable) were not significant.

The weak level of significance<sup>49</sup> and the negative coefficient for the FULINCSQ variable suggests the possibility of a quadratic income effect on volunteering. An increase in full income squared may reduce volunteering for people with low to mid-level incomes. (As noted above, respondents with high incomes were excluded to follow the methodology of Menchik and Weisbrod.)

The cross-price variable (PRICE) was significant in the largest sample<sup>50</sup> at a .10 significance level, and its negative coefficient supports Menchik and Weisbrod's finding that giving and volunteering are complements. If they are complements, for example, a rise in the after tax cost of contributing money would make volunteering decrease (presumably along with monetary contributions).

Intuitively, a low opportunity cost of volunteering (NWAGE) would have a more significant impact on volunteering than would the cross price of giving (PRICE). (In other words, using the analogy of peanut butter and jelly being complements, one would expect the volume of peanut butter sold to be more closely related to the price of peanut butter than to the price of jelly.) This suggests that there may be several dynamics affecting the opportunity cost of

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<sup>49</sup> Several assumptions are implicit in each reference to significant findings in this discussion of the tobit regression results. The hours of volunteer work are assumed to be distributed normally and truncated at zero. Other assumptions are that no data elements have been omitted and that there is no heteroscedasticity of the data elements. Also, the standard error is estimated and could be biased.

<sup>50</sup> The reader will note that the regression results reported in the center columns of Table I have a higher sample size than the results reported on the right side of Table I. Data on some states had to be omitted when using the data of tort filings per capita (Replication II on Table I).

volunteering, such as perhaps an income and substitution effect.

#### Local Government Spending

The local government spending variable, (LOCGOV) matched in terms of the sign of the coefficient and was significant at the .10 significance level for Replication I reported on Table I, and at the .01 significance level for Replication II. The result supports Menchik and Weisbrod's contention that there is no crowding out effect: increased government social welfare spending does not lead to reduced volunteering. (Menchik and Weisbrod initially had proposed two models for the effect of government spending. In the first, demand for social services is viewed as constant so that increased government expenditures would crowd out volunteering. In their second model, there is no necessary relationship between government spending and volunteering -- *i.e.*, an undersatisfied-demander model -- and no systematic relationship between government spending and volunteering was expected.<sup>51</sup>)

Another possible reason for this complementary relationship between government spending and volunteering is that local individual behavior related to social needs may tend to parallel local government action in response to social needs.

#### Age Variables

AGE, and AGESQ were not significant but did match Menchik and Weisbrod in terms of sign of coefficients. As reported above, those authors used the significant findings on their age variables as support for their investment model of volunteering

#### Preference Vector Variables

Many of the preference vector variables identified as being significant by Menchik and Weisbrod were found to be significant in this analysis as well.

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<sup>51</sup> Menchik and Weisbrod, 174-5.

The cultural elements of religiosity, education and prior generation volunteering showed strong predictive value. BACKVOL, RELIG, and ED were all significant at the .01 significance level. Interestingly, parental charitable behavior was a negative effect in the Menchik and Weisbrod analysis versus a positive effect in this analysis. That the sign of the coefficient for religiosity differed in the replications could be explained by the different manner of computing the data: Menchik and Weisbrod used parental religiosity, while the replication used respondent religiosity due to the unavailability of the former type of data. Many parents would attest to the statement that the values of offspring do not always mirror that of their parents.

Gender, marital status, and the presence of older children in the household also generally showed strong predictive value. Married persons, females, and persons with older children in the household are more inclined to volunteer, with a .01 significance level using the larger sample size (Replication I in Table I) and coefficient signs mirroring Menchik and Weisbrod. The variable related to having children younger than six years of age in the household was somewhat significant, particularly in Replication II, and the coefficient sign was opposite that found by Menchik and Weisbrod. This analysis shows that small children were likely a disincentive to volunteer in 1992; Menchik and Weisbrod found the variable (YGCHILD) not to be significant at the .01 significance level but with a positive coefficient.

Most of the preference vector elements related to community type did not support Menchik and Weisbrod's findings. Only the coefficient for large city (LCITY) was significant, and that variable differed in coefficient sign from Menchik and Weisbrod. The .01 significance level for LCITY and its negative coefficient suggests that people in large cities have less inclination to volunteer, possibly due to the more busy and impersonal nature of large cities where residents know fewer of the other residents relative to the city population.

## Volunteer Liability Variables

The volunteer liability variable based upon elements of state law, STLIAB, did not prove to have predictive value. This variable sought to represent actual provisions in state statutes as opposed to public perception of the law or the results of information searches of potential volunteers. Not surprisingly, the null hypothesis result suggests that in general, people are not lawyers and do not acquire legal advice in their day-to-day activities.

The state litigiousness variable, TBYPPOP, was found to be significant at the .05 significance level, and its negative coefficient supports the hypothesis that a higher perceived risk of being sued as a volunteer will reduce volunteering. TBYPPOP is a proxy variable, with total per capita tort lawsuits per state substituting for actual liability risk for volunteers. It is possible that higher litigiousness in general leads people to be more cautious in all of their activities, including volunteering. More exact state data to use, if it were available, would be the number of per capita volunteer lawsuits per year or per capita dollar judgments against volunteers per year.

The statistical significance of the variable for tort filings per capita (TBYPPOP) is conceptually interesting because the U.S. Congress saw fit to pass a liability protection statute specific to volunteering. If the narrowly defined legislation did not significantly change the overall liability climate, and if, as the TBYPPOP and STLIAB variable results suggests, potential volunteers focus on the general liability climate rather than laws specific to volunteering, then potential volunteers may not realize that they are more protected as volunteers, and the federal law may have little effect in increasing volunteerism.

The positive result for TBYPPOP, combined with the insignificant result for STLIAB, suggests that further research might also look at information pathways such as the media. For example, higher media reporting on volunteer lawsuits may reduce volunteering.