

Volunteer Work Measurement in a not traditional volunteering model.

The Case of a U.S. Time Banking Organization

LAURA BERARDI*

Assistant professor in Business Administration

Department of Economic Studies (DEC)

G. d'Annunzio University of Chieti-Pescara

Phone number: +39 085 45083202

Fax number: +39 085 45083208

e-mail: l.berardi@unich.it

MICHELE A. REA*

Full Professor in Business Administration

Department of Economic Studies (DEC)

G. d'Annunzio University of Chieti-Pescara

Phone number: +39 085 45083223

Fax number: +39 085 45083208

e-mail: m.rea@unich.it

ABSTRACT

This research aims to analyse different approaches for measuring volunteer work with the study of an important US Service Exchange Program from Maryland. We compare the generalist approach to replacement costs used by this Time Banking Organization (TBO) with other more specialist approaches and we also test the method proposed by ILO Manual that considers the full replacement cost, i.e. assigning the actual wage for the occupation and industry of the work performed to each hour volunteered. The case studied shows how in this organization the generalist approach generated an overestimate dollar value with respect to the other approaches proposed by literature and practice. TBOs, with a broad range of tasks, should calculate the economic value of volunteer work using a replacement cost approach that considers tasks and fields; and also have to show this value in financial and social statements both for internal and external purposes.

KEYWORDS: Time-banks, volunteer work measurement, financial accounting, social accounting.

INTRODUCTION

This paper analyses the approaches used by time banking organisations (TBOs) or service exchange programs to measure volunteer work. We describe the method used by an important US time banking organisation (TBO), Partners In Care Maryland (PIC) [www.partnersincare.org], which has 2,300 members, to capture the monetary value of volunteer work, ‘a service not exchanged in the marketplace’ (Brown, 1999; Mook et al., 2007, p. 505). We also present several other methods for measuring the economic value of volunteer work in this special type of non-profit organisation. Finally, we provide recommendations regarding how this information should be used in the PIC’s financial and social accounting system.

We consider three methods for assessing the economic value of volunteer work that are relevant at an organisational level, i.e., approaches to assessing the ‘observed replacement cost’ (Mook et al., 2007): a ‘generalist approach’, a ‘specialist approach’, and a ‘modified specialist approach’ (Mook & Quarter, 2003). In addition, we examine the use of the ‘full replacement cost approach’ as described in the ILO Manual for TBOs (ILO, 2011).

The value of volunteer work (Cordery & Narraway, 2010), as presented in financial or social statements, is useful information for both funders and policymakers (Mook, Handy, et al. 2007). For this reason, we also endeavour to determine whether the ‘valuation of unpaid labor should be part of financial statements’ (Mook et al. 2007) of TBOs. Mook et al. argue that: ‘excluding volunteer labor in nonprofit accounting statements undervalues a key and valuable resource on which many nonprofits rely. A more complete accounting that includes these contributions more accurately reflects the value of the organization to the community. In addition, this information can be useful to funders and policy makers who want to understand the full impact of their investment in a nonprofit.’ (Mook et al. 2007, p. 505).

PIC is a time banking nonprofit organisation that was established in 1993 by three women and operates in four counties in Maryland: Anne Arundel County, Calvert County, Easton County and Frederick County.

The Federal Administration of Aging defines PIC as ‘the first service exchange program in Maryland, and one of the largest service exchanges in the United States.’ In PIC’s programs, an hour of service credit is earned for each hour of service donated by volunteers. These credits may be exchanged at a later date if the volunteer is over 55 years of age or disabled, or the time may be donated back to the program for use by the frail and elderly who cannot volunteer themselves. Volunteer services are matched to individual needs, and include transportation, grocery shopping, handyman services, yard work, or social visits. Transportation for seniors is the most requested service; because of this effective and valuable service, PIC was recognised as one of the 14 most ‘promising programs’ in a federal study.

PIC is an independent charitable organisation that was created as a corporation. For federal tax purposes, PIC is a tax-exempt organisation. It receives a substantial part of its support from the general public (52% from ‘other contribution’ and 42% from ‘program service fees and other’ in the 2010 fiscal year) and governmental units (6% in the 2010 fiscal year). For the 2010 fiscal year, PIC had 1,389 participants and 15 employees; \$70,615 in gross assets and \$8,802 in net assets; and \$864,244 in revenue and \$970,921 in expenses.

[Table 1 here]

Time banking, adapted from the ‘Time Dollars model,’ proposed by Cahn (Seyfang, 2004), is a ‘reciprocal service exchange’ that uses units of time as currency (Lee, 2009). ‘The unit of currency, Time Dollar or Time Credit, is valued at an hour’s worth of a person’s labor. Individuals may earn time dollars by spending time working for others. The earned time dollars can be spent for services from others.’ (p. 324). Therefore, service exchange

programs, such as PIC, have been developed from the concept of ‘Time Dollars,’ which is described as a tax-exempt kind of currency that empowers people to convert their personal time into purchasing power by helping others and by building family, neighborhood, and community ties.

The existing literature defines the concept of ‘service exchange programs’ but does not analyse how and why TBOs need to measure volunteer work; moreover, no theoretical contribution exists regarding the accounting and accountability of volunteer activities performed for TBOs. TBOs—as well as other organisations that use volunteers—should initially assess multiple valuation methods to determine the most relevant and cost-effective method for their organisation. After determining the valuation method, TBOs also have to determine how to report the value of volunteer work to increase accountability to stakeholders.

This paper aims to examine the valuation, accounting and accountability of volunteer work through a case study of an important TBO.

BACKGROUND

Time banking definitions

The literature provides several definitions of time banking, time banks and service exchange programs. Lasker et al. (2011) state that ‘[t]ime banking is an international movement that seeks to transform traditional asymmetric social service models into social networks in which members both provide and receive services that are assigned equal value’ (p. 102). In this type of system, each service has equal value; these services are valued only in terms of the time spent doing them. ‘A member can provide a service to one person and receive a service from someone else in the network.’ (p. 103). A central database—named the ‘bank’—records hours accrued through services provided and hours spent on services

received (Lasker et al., 2011). Time banks thus facilitate ‘informal employment’ (Seyfang, 2001); ‘community-based’ interventions (Gregory, 2009); ‘social economy innovation’ (Seyfang, 2006); and types of ‘community-currency’ systems (Boyle, 2007; Collom, 2008).

Time Banks USA was started in the late 1980s by Cahn. The ‘Time Dollars Project’ (Cahn, 1992) is a service credit program with registered programs in more than 70 communities throughout the US, Great Britain and Japan. In these programs, ‘participants earn and spend the egalitarian electronic currency (time dollars) that is measured in the amount of time required to provide a service rather than the monetary value of the service. A staff is required to recruit participants, provide orientation, match providers and recipients as needed, track the hours, and distribute statements to members. The earliest time banks were service credit banking programs.’ (Collom, 2008; p. 417).

Gregory states that time banks ‘seek to encourage local people to give time to help others in their community, and for each hour they give, they receive one time credit. Each time credit is worth one hour and can be used to access goods and services provided by other local people involved in the time bank scheme.’ (Gregory, 2009; p. 324). They bring ‘people and local organizations together to help each other, utilizing previously untapped resources and skills, valuing work which is normally unrewarded, and valuing people who find themselves marginalized from the conventional economy.’ (Seyfang, 2006; p. 435). Seyfang notes that time banks ‘are community-based mutual volunteering schemes whereby participants give and receive services in exchange for time credits.’ (p. 63). These schemes can be described as follows (Seyfang, 2004, p. 63): participants earn a time credit for each hour of service given, a *broker* finds participants to fulfil requests for help from others and tracks the exchange of time credits, credits can be redeemed by purchasing services from other participants, saved for the future, or donated to others.

Time banks meet social needs in different ways, such as employing staff to broker services, being based in mainstream agencies, valuing all labour equally, and focusing on channelling informal mutual support rather than professional services (Cahn, 2001; Seyfang, 2002). 'Time dollar' programs operate through a computer program (or database) that tracks exchanges between members; require a coordinator or broker who plays a central role as recruiter, matchmaker, bookkeeper and cheerleader; and are established and funded by foundation and government grants (Cahn, 2001; p. 1). The four core principles (Gregory, 2009) (or values) of 'co-production' (Boyle, 2007) and time dollars (Cahn, 2001) are creating social capital, treating people as assets, re-defining work, and encouraging reciprocity. Therefore, TBOs use a database that tracks exchanges between members (Cahn, 2001); value what is normally unrewarded (Seyfang, 2006), such as the work performed by volunteers; and consider volunteers to be assets (Cahn, 2001; Boyle, 2007; Gregory, 2009).

Volunteer work measurement methods

In this paper, we refer to the working definition of volunteer work used in the ILO Manual. In particular, we study 'organization-based' volunteering or 'formal' volunteering, i.e., volunteering completed for or through non-profit institutions or other types of organisations (ILO 2011). The ILO Manual identifies five core variables that describe volunteer work (United Nations, 2003; ILO, 2011; Salamon et al., 2011): 1) the number of volunteers, 2) the number of hours volunteered, 3) the type of work performed (i.e., occupation), 4) the institutional setting of the work performed, and 5) the field (industry) in which the work is performed. Therefore, information systems of nonprofit organisations should collect data on both the *number of volunteers* and the *number of hours volunteered* to calculate the economic value of volunteer work based on what is considered more relevant for the organisation and a preliminary cost-benefit analysis. There are three 'broad strategies' for calculating the economic value of volunteer work (Mook et al., 2007): the *replacement*

cost approach, the *opportunity cost approach* (Brown, 1999), and the *social benefit approach* (Begoña et al., 2001).

The replacement cost and opportunity cost approaches focus on the *input* value of the work of the volunteers. The social benefit approach focuses on the value added by the *output* activities (i.e., benefits from volunteer work). Each valuation approach can use observed market proxies and/or declared market proxies: the *replacement cost approach* uses a replacement wage (observed) or a supervisor judgment (declared); the *opportunity cost approach* uses an alternative-employment wage (observed) or a volunteer judgment (declared); and the *social benefit approach* uses the costs of counterpart goods or services (observed) or a beneficiary judgment (declared) (Salamon et al., 2011).

Salamon et al. (2011; p. 227) states that the social benefits produced by volunteer work can be calculated in two different ways: ‘In the first place, for those volunteer activities associated with outputs that have a reasonable market counterpart, an “observed market proxy” can be found in the price paid for units of that output. Assuming that the extra amount of that output resulting from the volunteer activity can be determined, this can be considered a reasonable estimate of the economic value of the volunteer work. Alternatively, for any portion of the output of volunteer work for which no reasonable market counterpart can be identified, or for those who consider the market counterparts inappropriate or indeterminate, a “declared market proxy” can be used by asking the managers of volunteers, or the beneficiaries of volunteer effort (in the case of direct volunteering) to indicate what they would be willing to pay for the goods or services that the volunteers produced.’ Evaluating volunteer work at a fair market value, as required by US accounting standards, is more difficult with output-based methods (social benefit) than with input-based methods; for this reason, in our study, we consider organisational inputs.

In our study, we consider the point of view of the organisation, i.e., ‘what it would cost the organization to replace its volunteers with paid staff and continue the services currently provided by a volunteer’ (Mook et al., 2007). According to the ILO Manual, ‘the consensus among researchers in the field’ is that the replacement cost approach ‘is the most reasonable method for estimating the economic value of volunteer inputs [...]. However, this approach is not without its difficulties owing to hypothesized differences in skill and efficiency between a volunteer and a paid employee doing essentially the same job, not to mention differences in wage rates for similar work in different institutional settings (nonprofit organizations, government and for-profit businesses).’ (ILO, 2011; p. 36). The specialist approach to assessing replacement costs is the best approach for a non-profit organisation with a broad range of tasks, as it is ‘very precise and likely to result in the most accurate estimate’, even though it requires a greater amount of research to establish the appropriate market comparisons (Mook & Quarter, 2003; p. 5). The underlying principle of the specialist replacement cost approach is that volunteers can be replaced by wage earners, as perfect substitutes in terms of skills and productivity.

Karn proposes in his equivalency model that the true value of volunteering be fixed at the fair market value or purchase price of parallel paid services (Karn, 1982; Karn, 1983). Brudney notes that ‘to begin the economic assessment of volunteer labor, the market value of a nonpaid position is set at the annual salary for the beginning level of the equivalent job classification grade. If volunteers fill several agency jobs, a parallel paid position must be established for each one’ (Brudney 1990).

There are some criticisms about using the replacement cost approach to measure volunteer work (Mook et al., 2001): for example, volunteers may be less productive than paid employees (Brown 1999), and therefore, ‘replacement costs could overestimate the value of their contributions’ (Mook et al. 2001); moreover, ‘market rates for similar jobs might not

evaluate properly the contribution of volunteers who might bring higher levels of skill than the volunteer task requires.’ (Brown, 1999; Mook et al., 2001).

There are different approaches to assessing replacement cost (Mook & Quarter, 2003):

- 1) *The generalist approach* uses the average hourly wage for non-management, non-agricultural workers. In the U.S., the hourly wage provided by Independent Sector for each State and for each year is often used. ‘‘The value of volunteer time is based on the average hourly earnings of all production and nonsupervisory workers on private nonfarm payrolls (as determined by the Bureau of Labor Statistics). Independent Sector takes this figure and increases it by 12 percent to estimate for fringe benefits.’’
- 2) *The specialist approach* ‘‘targets the value of a volunteer’s role to the market value of the exact task.’’ The US uses the Bureau of Labor Statistics’ hourly wage rates from the National Compensation Survey, plus 12% for benefits.
- 3) *The modified specialist approach* ‘‘targets the rate for a volunteer task to the nonprofit organization and the general skill level of the volunteer task.’ The US uses ‘the North American Industry Classification System (NAICS), which classifies the labor force of all organizations including businesses, government institutions, and non-profit organizations according to economic activity. This classification system (jointly developed by the statistics agencies of Canada, the United States, and Mexico) provides hourly wage rates for hourly paid workers and salaried workers.’

[Table 2 here]

The ILO Manual recommends using the *full replacement cost method*, in which the actual wage ‘for the occupation and industry’ of the work performed is assigned for each hour volunteered (ILO, 2011). Therefore, this approach aims to consider differences in wage

rates for similar work in different fields. This approach thus provides a more precise and accurate evaluation of volunteer work because the potential disparity of wages between the nonprofit sector and the for-profit sector and between different industries is accounted for.

Lastly, in order to determine the economic value of volunteer work, the ‘associated benefit package’ (e.g., retirement, worker’s compensation insurance, life insurance, health or hospitalisation insurance) should be added to the amount of compensation (Brudney, 1990).

Organisations evaluating volunteer work should consider the advantages and disadvantages of each input-based method, as mentioned by Mook et al. (2003), and the full replacement cost method (ILO, 2011) before choosing the most relevant and cost-effective method.

[Table 3 here]

Volunteer work accounting and accountability tools

In the US, the value of volunteer work is usually not included in the organisation’s financial accounting statements (Mook et al., 2007; Mook & Quarter, 2003). ‘In general, accounting regulatory bodies have been restrictive about the circumstances under which they allow for including estimates for volunteer contributions within financial statements but, when they do, they have favoured replacement costs.’ (Mook et al., 2001; p. 73). In 1978, the US FASB provided the four criteria for inclusion in financial statements: 1) the amount must be measurable; 2) the organisation must manage the volunteers much like its employees; 3) the services must be part of the organisation’s normal work program and must be services that would otherwise be purchased; and 4) the services of the organisation must be for public use rather than for its members.

According to the FASB 116 (1993), the value of volunteer services reported on financial statements such as statements for internal and external purposes, grant proposals,

and annual reports can be used. FASB 116 requires that ‘contributed services’ are recognised as support if either of the following criteria is met:

1. the service provided by a volunteer either creates or enhances a nonfinancial asset (nonfinancial assets include assets such as buildings and equipment);
2. the service requires specialised skills; the service is provided by individuals with those skills; and the services would typically need to be purchased if they were not provided by volunteer donation (e.g., services provided by doctors, lawyers, accountants, teachers, carpenters, and other craftsmen, professionals, or skilled persons in their skilled capacity) (Zietlow et al., 2011).

The general method for determining whether contributed services meet the FASB criteria for financial forms is to determine whether the organisation would have purchased the services if they had not been donated. The value must reflect the cost of the service if it was purchased (the market value), either as a service or an hourly wage. From the perspective of an organisation, all the (observed) replacement cost methods, with either a generalist approach or a specialist approach, meet the FASB criteria. The full replacement cost approach, which considers each hour volunteered ‘per occupation and industry’, provides the closest estimation of the fair market value of the work performed by volunteers. ‘Even though accounting regulatory bodies allow for the inclusion of volunteer hours under limited circumstances, for a variety of reasons (especially the difficulties in keeping track of volunteer hours and in assigning a fair market value to them), most volunteer contributions still go unreported in financial statements or, at best, are included as a footnote’ (Mook et al., 2001).

The economic value of volunteer work reported in social statements (e.g., the ‘Expanded Value Added Statement’) can be used (Mook, Quarter, et al., 2007; Richmond et al., 2003), but the organisation must first implement and develop a system of ‘social’

accounting for collecting data and maintaining records, in order to ensure a level of accountability for both internal and external purposes (Alexander et al., 2010). This type of social statement focuses on multiple stakeholders (Mook & Quarter, 2006). ‘Value added is a measure of wealth that an organization creates by “adding value” to raw materials, products and services through the use of labor and capital; [...] the Expanded Value Added Statement includes social inputs based on appropriate market comparisons, and this procedure is applied to volunteer contributions.’ (Mook et al., 2001).

The Expanded Value Added Statement uses the replacement cost framework and targets the comparative market value to particular types of organisations, as also suggested by the ILO Manual at both the national and the global level. Mook and others also present a ‘Socioeconomic Impact Statement’ and a ‘Socioeconomic Resource Statement’, which include volunteer contributions (Laurie Mook, Quarter, et al., 2007). Thus, various solutions exist for assessing the economic value of volunteer work in social statements, and in all cases, ‘the inclusion of volunteer contributions tells a much different story about an organization than financial information alone.’ (Mook et al., 2001; p. 81)

METHODOLOGY

We present a case study of ‘Partners In Care Maryland’ to explore the assessment of volunteer work in a TBO, analysing the approach that PIC uses to evaluate the volunteer work carried out on its behalf.

For this analysis, we use multiple sources of data: site visits; interviews with managers, volunteers and staff; archival records (i.e., records regarding the number of volunteers, hours volunteered and the monetary value of volunteer activities); and documentation (i.e., all forms of documentation that can contain information relevant to volunteer work measurement, such as Form 990, the Annual Report, and internal reports on

volunteer activities). All data collected are for the fiscal year beginning 01 July 2009 and ending 30 June 2010.

Because volunteers in TBOs are individuals who work for an organisation, in our study, we focus on the point of view of the organisation and measure the monetary value of volunteer work at organisation level only.

Analysis and results

PIC is a service exchange program that has all the characteristics of service exchange programs stated by Cahn: it operates through a database that tracks exchanges between members and has staff who recruit participants (members and volunteers), provide orientation to participants, match providers and recipients as needed, track hours in the database, and distribute statements to its members (Cahn, 2001; Collom, 2008). Foundation and government grants (Cahn, 2001) were also extremely important for funding the establishment of the organisation and continue to provide funding for the survival and expansion of the organisation. PIC values volunteer work, a resource that is normally unrewarded (Seyfang, 2006), and they consider volunteers to be ‘assets’ (Cahn, 2001; Boyle, 2007; Gregory, 2009).

In particular, PIC uses volunteers in the following programs, which involve different tasks and require different levels of skill (high and low): ‘*Ride partner*’, ‘*Repair with care*’, ‘*The Boutique*’, ‘*Lifeline*’, ‘*Warm Houses*’, ‘*Just in Case*’, and ‘*Wisdom Works Council*’.

[Table 4 here]

PIC has the following classifications for miscellaneous tasks:

- ‘*Member care*’, which includes skilled tasks, such as providing computer or technology support, interviews, orientation, peer advocacy, Warm House administration, and pet care; and unskilled tasks, such as participating in social visits, phone calls, readings, recreational activities, respite care, social events, attending

hosting and preparing Warm Homes, laundry, sewing, Christmas basket delivery, diaper delivery, Emergency Kit delivery and replenishment;

- ‘*Fundraising*’, which includes providing research for grants and work at fundraisers and/or commercial functions; and
- ‘*Program operator*’, which includes managing cases, serving on the Wisdom Works Council, performing administrative/advocacy tasks, making crafts, providing translation services, assisting programs from home, making phone calls, and baking for events.

It is interesting to note that in PIC’s documentation system, individuals also earn ‘time credit’ for ‘Cash Donations,’ ‘Gift Certificate Donations’ and ‘Boutique Donations’ . However, this does not mean that individuals can donate time back to the fund; rather, the time credit is awarded for the time spent to making the donation.

In PIC’s database, the job descriptions for non-paid positions are clear and detailed, so it is possible to establish the equivalent job classification or category (Brudney, 1990) for all tasks in each volunteer program. In the following table, we list the tasks that PIC identifies in its accounting system and our classifications of tasks that refer to specific volunteer roles in the organisation, where each role corresponds to an occupation classified by the Standard Occupational Classification (SOC) System:

[Table 5 here]

Determining the skill level may be difficult, as some the tasks may correspond to different skill levels (high or low) and different occupations within the SOC classification:

- Sales-related tasks in the Boutiques of Crofton and Severna Park could correspond to both high-skill occupations (*First-Line Supervisors/Managers of Retail Sales Workers*) and low-skill occupations (*Sales and Related Workers*).

- Bricklayer and Mason tasks in the program ‘Friends of Arundel Seniors’ could correspond to both high-skill occupations (*Brick masons, Block masons*) and low-skill occupations (*Helpers--Brick masons, Block masons*).
- Handyman tasks could correspond to both high-skill occupations (*Installation, Maintenance, and Repair Workers, All other*) and low-skill occupations (*Helpers--Installation, Maintenance, and Repair Workers*).

By contrast, for other tasks, determining the occupations and skill levels that correspond to the SOC classification is less difficult.

PIC keeps records of the total number of volunteers, the total number of hours volunteered and the total number of hours volunteered per specific task performed.

Volunteers communicate the number of hours volunteered (and/or the miles driven) directly to the program coordinator or by e-mail. They also calculate the economic value of volunteer work using the generalist approach to assessing replacement cost. They use the average hourly wage for non-management and non-agricultural workers provided by Independent Sector for the state of Maryland (\$22.32).

In addition to the hourly rate provided by Independent Sector that PIC uses (*generalist approach to assessing replacement costs*) (Mook & Quarter, 2003), we consider the following other rates for estimating the monetary value of the unpaid services contributed by PIC’s volunteers:

1. Hourly rates based on occupations classified using the SOC System (*specialist approach to assessing replacement costs*) (Mook & Quarter, 2003);
2. Hourly rates based on industries classified using the North American Industry Classification System (NAICS) (*modified specialist approach to assessing replacement cost*) (Mook & Quarter, 2003) (for PIC, we identified only one industry,

in Sector 62 - Health Care and Social Assistance: ‘NAICS 624120 - Services for the Elderly and Persons with Disabilities’); and

3. Hourly rates based on occupations classified using the SOC in the specific industry of PIC: ‘NAICS 624120 - Services for the Elderly and Persons with Disabilities’ (*full replacement cost approach suggested by the ILO Manual*) (ILO, 2011).

Each rate assumes a ‘replacement value methodology, where unpaid labor is valued at what it would cost the organization to replace its volunteers with paid staff and continue the services currently provided by a volunteer’ (Mook et al., 2007; p. 510).

Generalist approach to assessing replacement cost

Assuming that there is one rate for volunteer tasks, PIC calculates the economic value of volunteer work using the formula [$\mathbf{H} * \mathbf{W}_{is}$], where ‘ \mathbf{H} ’ is the total amount of hours volunteered (27,823 hours in the 2010 fiscal year) and ‘ \mathbf{W}_{is} ’ is the average hourly gross wage for non-agricultural workers published by Independent Sector for the year 2009 (\$22.32 is the most recent rate calculated for the state of Maryland).

The economic value of volunteer work calculated by PIC for the 2010 fiscal year is \$621,016; this is a gross value because Independent Sector adds 12% for benefits to the rate.

[Table 6 here]

Specialist approach to assessing replacement cost

PIC, like other TBOs, has very detailed job descriptions for each task in its accounting system. Thus, PIC can categorise each volunteer role as suggested by Mook and Quarter in the 2003 manual. They have many volunteer tasks, so we group similar tasks. For each group of tasks, we identify the corresponding occupation using the Standard Occupational Classification (SOC) System. Each occupation has an estimated hourly wage (mean and median). We consider the mean hourly wage estimated per occupation according to the US Bureau of Labor Statistics. Once we assign the market rate for each category of task, we

calculate a total value for each category using the formula [$h_{occ} * w_{occ}$], i.e., by multiplying the number of hours contributed within each category (h_{occ}) by the mean hourly wage of each task category (w_{occ}). The hourly wages do not consider the benefits, so the calculated monetary value is a net value. We add 12%, as recommend by Independent Sector, to calculate the gross value of the volunteer work.

In this case, we calculate the following monetary values:

1. The value of \$465,148 reflects the value of *high-skill* tasks performed for PIC (i.e., sales managers, brick masons/block masons, and installation/maintenance/repair workers) [*Table 7 here*];
2. The value of \$369,402 reflects the value of *low-skill* tasks (i.e., retail salespersons, helpers of brick masons/block masons and helpers of installation/maintenance/repair workers) [*Table 8 here*];
3. The value of \$417,275 is the average between the *high-skill* and the *low-skill* tasks mentioned above.

Modified specialist approach to assessing replacement cost

For PIC, the general field in which volunteer work is performed falls under the ‘*Human Services*’ (P) NTEE category, with the following two sub-groups: P80, *Services to Promote the Independence of Specific Populations*, and P81, *Senior Centers/Services*.

The corresponding industry is NAICS 624120 - *Services for the Elderly and Persons with Disabilities* in Sector 26 - *Health Care and Social Assistance* of the North American Industry Classification System (NAICS).

The modified specialist approach calculates the total comparative market value for the hours contributed by volunteers through programs in a specific industry. In the case of PIC, services are performed in only one field, so we use the industry of ‘*Services for the Elderly and Persons with Disabilities*’ only.

The total value of volunteer work is obtained by taking the total hours contributed by volunteers within an industry (h_{ind}) and multiplying them by the hourly wage estimates for that industry (w_{ind}), as calculated by the Bureau of Labor Statistics. The formula for each industry is: $[h_{ind} * w_{ind}]$. This calculation does not consider benefits, so the monetary value calculated with this formula is a modified net value. We add 12%, as recommend by Independent Sector, to calculate the gross value of the volunteer work (\$387,657).

[Table 9 here]

Approach to assessing replacement cost suggested by the ILO Manual

As suggested in the ILO Manual, we also calculate the full replacement cost by assigning the actual wage for the occupation and industry of the work performed to each hour volunteered.

We calculate the total value for each occupation in the industry NAICS 624120 - Services for the Elderly and Persons with Disabilities using the formula $[h_{ind\&occ} * w_{ind\&occ}]$, i.e., by multiplying the number of hours contributed within each occupation category in the industry 624120 ($h_{ind\&occ}$) by the mean hourly wage of each occupation category in the same industry 624120 ($w_{ind\&occ}$). This calculation does not consider benefits, so the monetary value calculated with this formula is a net value. We add 12%, as recommend by Independent Sector, to calculate the gross value of volunteer work.

We calculate the following monetary values:

1. The value of \$437,776 reflects the value of *high-skill* tasks performed for PIC (i.e., sales managers) [Table 10 here];
2. The value of \$353,363 reflects the value of *low-skill* tasks (i.e., retail salespersons) [Table 11 here];
3. The value of \$395,569 is the average between the *high-skill* and the *low-skill* tasks mentioned above.

Because the occupation categories in the industry NAICS 624120 ‘Services for the Elderly and Persons with Disabilities’ are less detailed than the general classification used before, for the specialist approach, some of PIC’s tasks are included in more generic categories (e.g., ‘making crafts’ is included in the generic category ‘27-0000 Arts, Design, Entertainment, Sports, and Media Occupations;’ ‘heavy cleaning’ is included in the generic category ‘37-0000 Building and Grounds Cleaning and Maintenance Occupations;’ and ‘baking’ and ‘sewing’ are included in the generic category ‘51-0000 Production Occupations’).

For this approach, the categories ‘brick masons/block masons’ (high skills) and ‘brick masons/block masons helpers’ (low skills) are included in a more generic category: ‘47-0000 Construction and Extraction Occupations.’ Moreover, the categories ‘installation/maintenance/repair workers’ (high skills) and ‘installation/maintenance/repair worker helpers’ (low skills) are included in a more generic category: ‘49-0000 Installation, Maintenance, and Repair’.

PIC’s system of accounting volunteer work

PIC reports information on volunteer work in internal and external non-audited reports only, not in financial statements (or on Form 990). The ‘Statistical executive summary – Fiscal Year 2010’, which PIC uses both for internal purposes (to manage and control volunteer work) and for external purposes (to raise funding, obtain grants, recruit volunteers), for example, provides the following general information on volunteer work: volunteer hours worked (27,823); number of participants involved (1,389); total membership (2,335); and community-wide miles driven on behalf of PIC (153,595).

In this annual report, PIC also reports specific information on each program that uses volunteers: ‘*Ride Partners*’ (number of rides provided, number of miles driven, number of active drivers, percentage of female drivers, percentage of male drivers, age range and

number of drivers); ‘*Repair with care*’ (number of tasks completed); ‘*Safety Equipment*’ (number of installations); ‘*LifeLine*’ (number of subscribers); and ‘*Just in Case*’ (number of emergency kit participants).

The economic value calculated using the generalist approach to assessing replacement cost (\$22.32 hourly wage for Maryland, according to Independent Sector) is presented in other reports prepared for specific purposes (e.g., valuation for grants), but PIC does not report the value of volunteer inputs and outputs in annual reports in quantitative terms (Mook et al., 2005; Cordery & Narraway, 2010). As ‘Volunteers’ invisibility in charities’ reports is likely to either diminish external stakeholders’ perceptions of organizational performance and volunteers’ essential contributions or feed into stakeholders’ concerns that volunteers’ efforts are not appropriately recognized’ (Cordery et al., 2013; p. 47), PIC should provide more information about volunteer contributions in its audited annual reports.

DISCUSSION

Mook and Quarter in their manual (2003) declare that ‘the generalist approach makes the assumption that all volunteer tasks should be treated equally’ (p. 2); therefore, conceptually, the generalist approach may be suitable for TBOs, where one hour of time worked is valued equally and independently of the type of task performed. Nonetheless, Mook and Quarter also state that ‘when volunteer value is calculated for a single organization, this approach may not be appropriate unless there is limited variation between the types of tasks undertaken by volunteers in a society. Our recommendation is not to use this approach when making an estimate for volunteer value in your organization unless no other option is available.’ (Mook & Quarter, 2003; p. 2).

TBOs usually require a broad range of volunteer tasks; hence, for TBOs, ‘the *specialist approach* may be more accurate, even though it requires greater research to

establish the appropriate market comparisons' (Mook & Quarter, 2003; p. 5). The *modified specialist approach* is more practical than the specialist approach where, for instance, just one hourly wage can be applied to all tasks within an organisation that works in one field, such as PIC; if the organisation works in several industries, however, multiple hourly wages that correspond to the various fields (or industries) should be applied. The best method for calculating economic value is to consider both the industry and the specific occupations in which volunteers work on behalf of the organisation, as stated in the ILO Manual (*full replacement cost approach*).

In this study, we compared the value of volunteer work calculated using four different approaches. PIC's generalist approach to assessing replacement cost provided the highest value (\$621,016).

If we consider the average hourly wage for both high- and low-skill tasks performed by volunteers who work in the boutiques and who work as a handyman, the modified specialist approach provides the lowest value (\$387,657), the specialist approach provides the highest value (\$417,275), and the full approach suggested by the ILO Manual provides a value in the middle (\$395,569).

[Figure 1 here]

For PIC, the results of the ILO Manual approach are very close to, but slightly lower than, the results of the specialist approach. The 'full' replacement cost approach provides a more accurate estimation, since we consider the average wage calculated for tasks performed by paid workers in the exact field of the organisation.

TBOs also should use information regarding the economic value of volunteer work provided in their financial and social statements for both internal and external purposes. The literature on social accounting offers different methods of including volunteer contributions in organisations' reporting systems, integrating both financial and social aspects of volunteer

contributions. The ‘Expanded Value Added Statement’ (EVAS), which is based on the replacement cost framework and targets the comparative market value to the particular organisational fields, may be useful for TBOs that collect data on volunteer work in a very detailed manner, considering each task separately when calculating the number of hours worked.

Based on the financial statement of PIC for the 2010 fiscal year, which started on July 2009 and ended on June 2010, we present a EVAS for PIC that uses the full replacement cost method for assessing volunteer work (\$395,569).

Figure 1 presents the ‘partial value added’ by PIC (Mook et al., 2007) and is organised in three columns that refer to different types of value added (p. 511) :

- *Financial*, ‘which represents information from audited financial statements only and therefore is also referred to as restricted value added’ (\$438,616).
- *Social*, ‘which represents information about nonmonetized contributions for which a market comparison is estimated’ (\$395,569). To calculate volunteer contributions, we do not distinguish between volunteer hours that are part of the time bank system and those that are not, since all volunteer hours are considered to be part of PIC’s programs. For instance, administrative work and fundraising performed by public relations and fundraising managers would be included.
- *Combined*, ‘which represents the total of the financial and social value added and is referred to as EVAS’ (\$834,185).

[Table 12 here]

The value added by the organisation is distributed to the stakeholders in its entirety in the EVAS. Table 12 presents the value added distribution for all stakeholders in PIC who receive shares of the value added; the distribution is as follows: *employees*, \$524,095 through wages and benefits; *society*, \$395,569 through the value of volunteer work; the *organisation*,

\$20,356 through depreciation (and \$106,677 through the loss of assets); and *banks and other financial supporters*, \$842 through interest.

The total value added that is distributed corresponds to the total value added that is created.

Where the items are limited to those on audited financial statements, that value added is \$438,616; where the items are expanded to include nonmonetised social contributions, the value added is \$834,185.

The ratio of value added to purchases is calculated by dividing the value added (financial, social and combined) by the cost of external goods and services. Based on this ratio, for every dollar expended on goods and services, the organisation generated about \$2 in value added, about \$1 from revenue (financial value added) and about \$1 from volunteers (social value added).

PIC, as a TBO and member-based organisation (Mook et al., 2007), ‘should include information on its volunteer contributions in its annual report and add an explanatory note to its annual financial statement of the value added by its volunteers as a way of acknowledging the contribution made by its members in meeting its mission’ (p. 517); this is the main goal of social accountability. Information regarding volunteer (members of PIC) contributions and the corresponding value added should be communicated to the other stakeholders, such as employees, society, other organisations, and banks and other financial supporters, in PIC’s annual report using a EVAS to supplement the financial information already presented in the organisation’s audited financial statement.

CONCLUSION

We present a case study of Partners In Care Maryland to explore how TBOs measure volunteer work and use the economic value of volunteer work presented in financial and social statements and reports in measuring volunteer work. Many empirical studies reported

in the literature have examined volunteer work measurement and accounting; however, no existing study has focused on volunteer work measurement and accounting in time bank organisations. This work thus aimed to provide time banks with useful tools for evaluating volunteer work in their organisations.

We compared several specialist approaches to assessing replacement costs with the generalist approach used by PIC. We found that the value calculated by PIC, which uses the average hourly wage for Maryland that is suggested by Independent Sector, is higher than that calculated by the specialist approaches.

The most accurate method is the approach suggested by the ILO Manual, which considers the actual wage ‘for the occupation and industry’ of the work performed for each hour volunteered. The full replacement cost approach is the most accurate method because the use of an hourly wage that corresponds to a specific occupation and skill level in a specific field (industry) ensures that volunteer work is assessed at the ‘fair market value’, as suggested by the FASB criteria, the System of National Accounts and the ILO Manual. This full replacement cost method is particularly suitable for time banking because—as is the case for PIC—TBOs usually have a very detailed system of maintaining records of volunteer work performed for each task and volunteers are considered both ‘incoming and outgoing resources’.

PIC should apply the full replacement cost approach because, as a TBO, PIC already collects the data required for the full replacement cost approach and PIC needs to enhance relationships with internal and external stakeholders, who would be interested in a more accurate measurement of volunteer work (Cordery et al., 2013). PIC already recognises the importance of measuring volunteer work and would have the necessary data for a more accurate method to increase accountability.

Finally, we recommend the use of the full replacement cost approach particularly for TBOs that already collect data on volunteer tasks and skills and that use volunteers for mostly the same tasks every year. TBO should collect such data systematically as a broker. Thus, little work would be required to isolate each particular task and skill level.

Managing time bank programs, TBOs usually consider the same value for all volunteer work hours performed, but if a TBO uses a hierarchical valuation method for accountability, different weight could be assigned to different tasks by volunteers putting first tasks with higher hourly wages assigned. Therefore, TBOs should separately manage issues related to valuation and accountability within their time bank system. For other stakeholders, such as service recipients, organisations, funders, the community and society at large, a hierarchical valuation method would provide precise and accurate information about volunteer contributions that add value for all stakeholders. TBOs require a social accounting system for not only internal purposes (to manage volunteers and volunteer activities and programs) but also external purposes. Time banks should demonstrate that when members exchange work time with each other, they create value for the community. Social accounting is also important for the survival and expansion of TBOs, as information regarding the social value created by service exchange programs is required to secure foundation and government grants.

Below, we provide recommendations to TBOs regarding volunteer work valuation and accountability. First, TBOs should keep records on the hours performed by volunteers (number of hours per occupation and fields). They also should distinguish between low and high skill levels for each type of task performed by volunteers. Second, TBOs should review all the above mentioned evaluation methods and identify the most relevant and cost-effective method for their particular organisation (for instance, for PIC, the most relevant and cost-effective method is the full replacement cost method proposed by ILO). Last, TBOs should

include information on volunteer contributions in their annual reports and use, for instance, a EVAS to demonstrate the contributions made by volunteers in meeting the organisational mission.

This empirical study can be extended to other TBOs in order to verify our findings and to validate methods suggested in the literature and used in practice for the measurement and accounting of volunteer work. Further studies could verify the effect of using the ILO Manual method on the management of volunteer members of a time bank program and the impact of the disclosure of volunteer value added on relationships with other important stakeholders, such as service recipients, organisations, funders, the community and society at large. Further studies could also examine the differences between input-based valuation methods and output-based valuation methods for TBOs or other nonprofit organisations. Moreover, further studies could investigate, for instance, how the use of an output-based valuation method could change the EVAS if inputs are assessed using a replacement cost method and the outputs are assessed using a comparative market valuation of the services performed.

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TABLES AND FIGURES

Table 1 – Revenue and Expenses Statement of PIC – Fiscal year 2010

	Prior year	Current year
Contributions and grants	559,455.00	502,583.00
Program service revenue	336,151.00	342,790.00
Investment income	254.00	-2.00
Other revenue	13,995.00	18,873.00
Total revenue	909,855.00	864,244.00
Grants and similar amounts paid	0.00	0.00
Benefits paid to or for members	0.00	0.00
Salaries, other compensation, employee benefits	453,014.00	524,095.00
Professional fundraising fees	0.00	0.00
Other expenses	471,009.00	446,826.00
Total expenses	924,023.00	970,921.00
Revenue less expenses (Loss)	-14,168.00	-106,677.00

Source: Form 990 for the 2009 tax year beginning 7/01/2010 and ending 6/30/2010.

Table 2 - Approaches to replacement costs applicable to TBOs.

Methods	Formula	Labels
<i>Generalist approach</i>	$H * W_{is}$	<p>H = total number of hours volunteered</p> <p>W_{is} = average gross hourly wage from US independent sector (including 12% for benefits)</p>
<i>Specialist approach</i>	$\sum h_{occ} * w_{occ} + 12\%$	<p>h_{occ} = number of hours per occupations and skills</p> <p>w_{occ} = specific net hourly wage estimates per occupation, classified using the Standard Occupational Classification (SOC) System, from the Bureau of Labor Statistics</p> <p>12% = benefits</p>
<i>Modified specialist approach</i>	$\sum h_{ind} * w_{ind} + 12\%$	<p>h_{ind} = number of hours per industries from the NTEE classification</p> <p>w_{ind} = specific net hourly wage estimates per Industries, classified using the North American Industry Classification System (NAICS) industries, from the Bureau of Labor Statistics</p> <p>12% = benefits</p>
<i>ILO Manual approach</i>	$\sum h_{ind\&occ} * w_{ind\&occ} + 12\%$	<p>h_{ind&occ} = number of hours per occupations and skills in specific industry</p> <p>w_{ind&occ} = specific net hourly wage estimates per occupations and skills in specific industry, from the Bureau of Labor Statistics</p> <p>12% = benefits</p>

Table 3 - Approaches to replacement costs applicable to TBOs: advantages, disadvantages and according to FASB .

Methods	Advantages	Disadvantages	FASB
<i>Generalist approach</i>	Useful for surveys of volunteer value	Too general for application to a particular organization or a particular task	Accorded to the FASB but far from the market value
<i>Specialist approach</i>	Very precise and likely to result one of the most accurate estimate	Necessary information may be difficult to obtain for some organizations	Accorded to the FASB and near from the market value
<i>Modified specialist approach</i>	Not as precise as the specialist approach, but more practical	For organizations with a broad range of tasks, could be too approximate	Accorded to the FASB but not near from the market value as the specialist approach
<i>ILO Manual approach (full replacement cost method)</i>	More precise and accurate than the other estimates	Necessary information may be difficult to obtain for some organizations	Accorded to the FASB and equal to the fair market value

Source: (ILO, 2011; Mook & Quarter, 2003; Salamon, Sokolowski, & Haddock, 2011)

Table 4 – Programs, tasks and level of skills of PIC’s volunteers

Program	Description	Tasks	Skills
Ride partner	the arm-in-arm and door-through-door transportation program to help older adults live independently	driver (or rider) for medical transportation and transportation to doctors; driver (or rider) for transportation for errands (grocery, recreation, banking, church, food bank, social services, grooming, prescription pickup, shopping, warm house transportation, etc.)	low
Repair with care	the small repairs program to assist people to maintain their homes for safe and independent living	handyman (light cleaning, Chesapeake HS clean up, heavy cleaning, gardening, bricklayer, mason, etc.)	high and low
The Boutique	the retail store where donations and purchases support other programs	collecting donations, event planning/participation, selling in the boutiques of Crofton and Severna Park	high and low
Lifeline	the Lifeline Personal Emergency Response System that PIC provides to hundreds of people throughout the community	tasks of “customer services”: administrative (paperwork), installation, swap equipment, troubleshooting, removing unit, etc.	high and low
Warm Houses	program to combat social isolation and bring people together in their own neighborhoods for conversation and camaraderie	social assistant and personal and home care (Warm House Attendance, Warm House Host/Hostess, Warm House Preparation, Other)	high and low
Just in Case	emergency kits to help area residents shelter-in-place through the first critical hours and days of an emergency such as snow storm, hurricane, power outage, flu, or other event	tasks of “customer services” (Emergency Kit Delivery, Replenish Emergency Kit)	low
Wisdom Works Council	a “leadership” volunteer team who work on special projects	Management, leadership, administrative and advocacy	high

Source: Internal reports – Fiscal year 2010

Table 5 - Group of tasks and correspondent SOC Occupations.

Groups of PIC tasks	SOC code	Description
Grant Research, Work at Fundraisers and/or Comm. Functions, Boutique Collecting Donations	11-2031	Public Relations and Fundraising Managers
Member Care (Computer or Technology support)	15-1150	Computer Support Specialists
Case Management, Wisdom Works Council, Administrative/Advocacy	21-1093	Social and Human Service Assistants
Member Care (Interviews, Orientation, Peer Advocacy, Warm House Administration)	21-1093	Social and Human Service Assistants
Crafts (flower arrangements, crochet, needlework, knit etc.)	27-1012	Craft Artists
Translation	27-3091	Interpreters and Translators
Light Cleaning	37-2012	Maids and Housekeeping Cleaners
Chesapeake HS Clean Up, Heavy Cleaning	37-2019	Building Cleaning Workers, All Other
Gardening	37-3011	Landscaping and Grounds keeping Workers
Member Care (Pet Care)	39-2021	Nonfarm Animal Caretakers
Assist. Prog. from Home (mailings, calls, etc.), Help the Program, Phone Calls re Yard Work	39-9021	Personal and Home Care Aides
Member Care (Friendly Visit, Phone, Reading, Recreation, Respite, Social Event Participation, Warm House Attendance, Warm House Host/Hostess, Warm House Preparation, Other)	39-9021	Personal and Home Care Aides
Boutique Event Planning/Participation	41-1011	First-Line Supervisors of Retail Sales Workers
Boutique-Crofton, Boutique-Severna Park	41-1011 [or 41-2031]	First-Line Supervisors of Retail Sales Workers [or Retail Salespersons]
Lifeline (Administrative-Paperwork, Installation-formerly HW, Swap equipment, Troubleshooting, Removing unit), Member Care (Replenish Emergency Kit)	43-4051	Customer Service Representatives
Friends of Arundel Seniors (bricklayer, mason)	47-2021 [or 47-3011]	Brick masons, Block masons [Helpers--Brick masons, Block masons]
Handyman	49-9799 [or 49-9098]	Installation, Maintenance, and Repair Workers, All Other [or Helpers--Installation, Maintenance, and Repair Workers]
Baking for Events	51-3011	Bakers
Member Care (Laundry)	51-6011	Laundry and Dry-Cleaning Workers
Member Care (Sewing)	51-6051	Sewers, Hand
Medical transportation, Transportation to Doctors	53-3011	Ambulance Drivers and Attendants, , Except Emergency Medical Technicians
Delivery Cash Donation, Delivery Gift Certificate Donation, Delivery Boutique Donation	53-3033	Light Truck or Delivery Services Drivers
Member Care (Christmas Basket Delivery, Delivery of diapers, Emergency Kit Delivery)	53-3033	Light Truck or Delivery Services Drivers
Ride Partners-reimburse mileage, Transportation for errands	53-3041	Taxi Drivers and Chauffeurs

Source: Internal reports – Fiscal year 2010

Table 6 - Generalist approach to replacement cost applied by PIC.

State	W _{is} (\$)	H	Dollar value
Maryland	22.32	27,823.31	621,016.28

Source: Internal reports – Fiscal year 2010.

Note: **\$621,016.28** is a gross value of volunteer work performed by volunteers that also considers the benefits (12%).

Table 7 - Specialist approach to replacement cost applied to PIC (High level of skills).

SOC occupations (high skills)	w _{occ} (\$)	h _{occ}	Dollar value
11-2031 Public Relations and Fundraising Managers	50.19	102	5,119.38
15-1150 Computer Support Specialists	24	25.25	606
21-1093 Social and Human Service Assistants	14.47	557.5	8,067.03
27-1012 Craft Artists	15.39	191	2,939.49
27-3091 Interpreters and Translators	23.94	2	47.88
37-2012 Maids and Housekeeping Cleaners	10.17	82.5	839.03
37-2019 Building Cleaning Workers, All Other	13.38	5	66.9
37-3011 Landscaping and Groundskeeping Workers	12.23	9	110.07
39-2021 Nonfarm Animal Caretakers	10.61	28	297.08
39-9021 Personal and Home Care Aides	9.82	5,515.6	54,163.19
41-1011 First-Line Supervisors of Retail Sales Workers	19.18	10,946.78	209,959.2
43-4051 Customer Service Representatives	15.76	278.5	4,389.16
47-2021 Brickmasons, Blockmasons	24.09	156	3,758.04
49-9799 Installation, Maintenance, Repair Workers, All Other	18.91	931.75	17,619.39
51-3011 Bakers	12.19	37	451.03
51-6011 Laundry and Dry-Cleaning Workers	10.21	41.5	423.72
51-6051 Sewers, Hand	12.11	3	36.33
53-3011 Ambulance Drivers and Attendants	11.6	5,942.33	68,931.03
53-3033 Light Truck or Delivery Services Drivers	15.45	660.5	10,204.73
53-3041 Taxi Drivers and Chauffeurs	11.82	2,308.1	27,281.74
Total		27,823.31	415,310.44

Source: Internal reports – Fiscal year 2010.

Note: \$415,310.44 is a net value of volunteer work performed by volunteers, we also considers 12% of benefits as stated by US Independent Sector (\$49,837.25). The gross value of volunteer work performed by PIC's volunteers is **\$465,147.70**.

Table 8 - Specialist approach to replacement cost applied to PIC (Low level of skill).

SOC occupations (low skills)	W_{occ}	h_{occ}	Dollar value
11-2031 Public Relations and Fundraising Managers	50.19	102	5,119.38
15-1150 Computer Support Specialists	24	25.25	606
21-1093 Social and Human Service Assistants	14.47	557.5	8,067.03
27-1012 Craft Artists	15.39	191	2,939.49
27-3091 Interpreters and Translators	23.94	2	47.88
37-2012 Maids and Housekeeping Cleaners	10.17	82.5	839.03
37-2019 Building Cleaning Workers, All Other	13.38	5	66.9
37-3011 Landscaping and Groundskeeping Workers	12.23	9	110.07
39-2021 Nonfarm Animal Caretakers	10.61	28	297.08
39-9021 Personal and Home Care Aides	9.82	5,515.6	54,163.19
41-1011 First-Line Supervisors of Retail Sales Workers	19.18	8	153.44
41-2031 Retail Salespersons	12.02	10,938.78	131,484.1
43-4051 Customer Service Representatives	15.76	278.5	4,389.16
47-3011 Helpers-Brickmasons, Blockmasons, etc.	14.65	156	2,285.4
49-9098 Helpers--Installation, Maintenance, Repair Workers	12.8	931.75	11,926.4
51-3011 Bakers	12.19	37	451.03
51-6011 Laundry and Dry-Cleaning Workers	10.21	41.5	423.72
51-6051 Sewers, Hand	12.11	3	36.33
53-3011 Ambulance Drivers and Attendants	11.6	5,942.33	68,931.03
53-3033 Light Truck or Delivery Services Drivers	15.45	660.5	10,204.73
53-3041 Taxi Drivers and Chauffeurs	11.82	2,308.1	27,281.74
Total		27,823.31	329,823.15

Source: Internal reports – Fiscal year 2010.

Note: \$329,823.15 is a net value of volunteer work performed by volunteers, we also considers 12% of benefits as stated by US Independent Sector (\$39,578.78). The gross value of volunteer work performed by PIC's volunteers is **\$369,401.93**.

Table 9 - Modified specialist approach to replacement cost applied to PIC (High level of skills).

NTEE category (Field)	NAICS Sector	W_{ind} (\$)	H_{ind}	Dollar value
P - Human Services (P80 - P81)	624120 - Services for the Elderly and Persons with Disabilities	12.44	27,823.31	346,121.98

Source: Internal reports – Fiscal year 2010.

Note: \$346,121.98 is a net value of volunteer work performed by volunteers, we also considers 12% of benefits as stated by US Independent Sector (\$41,534.64). The gross value of volunteer work performed by PIC's volunteers is **\$387,656.61**.

Table 10 - ILO manual approach to replacement cost applied to PIC (High level of skills).

NAICS 624120 - SOC occupations (high skills)	w_{ind&occ} (\$)	h_{ind&occ}	Dollar value
11-2031 Public Relations and Fundraising Managers	28.73	102	2,930.46
15-1150 Computer Support Specialists	20.22	25.25	510.56
21-1093 Social and Human Service Assistants	13.49	557.5	7,520.68
27-0000 Arts, Design, Entertainment, Sports, and Media Occ.	20.24	191	3,865.84
27-3091 Interpreters and Translators	21.13	2	42.26
37-2012 Maids and Housekeeping Cleaners	9.96	82.5	821.70
37-0000 Building and Grounds Cleaning and Maintenance Occ.	10.26	5	51.30
37-3011 Landscaping and Grounds keeping Workers	10.05	9	90.45
39-2021 Nonfarm Animal Caretakers	12.10	28	338.80
39-9021 Personal and Home Care Aides	9.88	5,515.6	54,494.13
41-1011 First-Line Supervisors of Retail Sales Workers	16.56	10,946.78	181,278.68
43-4051 Customer Service Representatives	15.73	278.5	4,380.81
47-0000 Construction and Extraction Occupations	15.24	156	2,377.44
49-0000 Installation, Maintenance, and Repair Occupations	15.17	931.75	14,134.65
51-0000 Production Occupations	16.67	37	616.79
51-6011 Laundry and Dry-Cleaning Workers	10.55	41.5	437.83
51-0000 Production Occupations	16.67	3	50.01
53-3011 Ambulance Drivers and Attendants	14.51	5,942.33	86,223.21
53-3033 Light Truck or Delivery Services Drivers	10.39	660.5	6,862.60
53-3041 Taxi Drivers and Chauffeurs	10.33	2,308.1	23,842.67
Total		27,823.31	390,870.84

Source: Internal reports – Fiscal year 2010.

Note: \$390,870.84 is a net value of volunteer work performed by volunteers, we also considers 12% of benefits as stated by US Independent Sector (\$46,904.50). The gross value of volunteer work performed by PIC's volunteers is **\$437,775.34**.

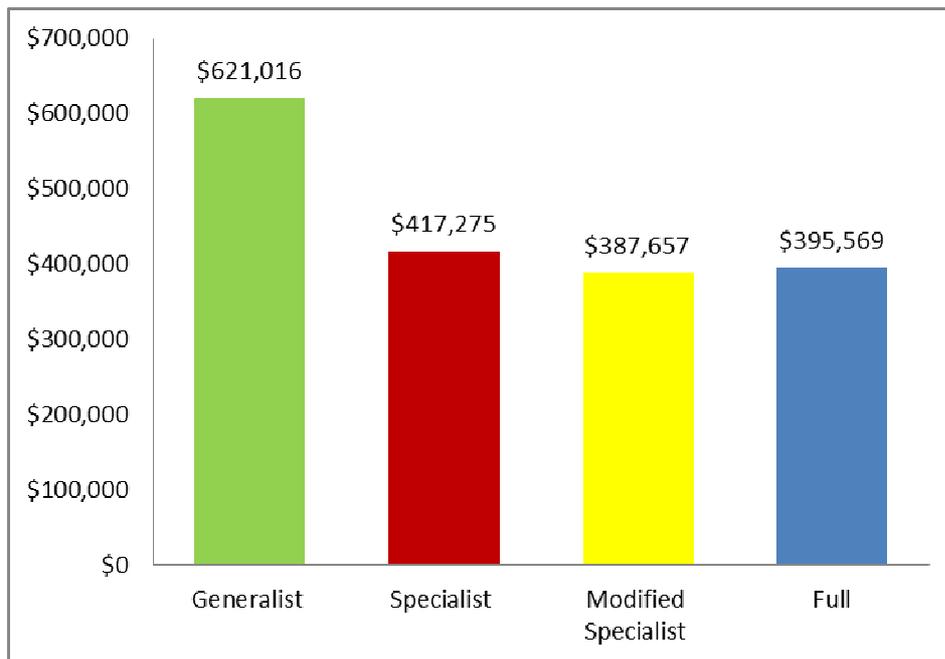
Table 11 - ILO manual approach to replacement cost applied to PIC (Low level of skills).

NAICS 624120 - SOC occupations (low skills)	W_{ind&occ} (\$)	h_{ind&occ}	Dollar value
11-2031 Public Relations and Fundraising Managers	28.73	102	2,930.46
15-1150 Computer Support Specialists	20.22	25.25	510.56
21-1093 Social and Human Service Assistants	13.49	557.5	7,520.68
27-0000 Arts, Design, Entertainment, Sports, and Media Occ.	20.24	191	3,865.84
27-3091 Interpreters and Translators	21.13	2	42.26
37-2012 Maids and Housekeeping Cleaners	9.96	82.5	821.7
37-0000 Building and Grounds Cleaning and Maintenance Occ.	10.26	5	51.3
37-3011 Landscaping and Grounds keeping Workers	10.05	9	90.45
39-2021 Nonfarm Animal Caretakers	12.10	28	338.8
39-9021 Personal and Home Care Aides	9.88	5,515.6	54,494.13
41-1011 First-Line Supervisors of Retail Sales Workers	16.56	8	132,48
41-2031 Retail Salespersons	9.67	10,938.78	105,778
43-4051 Customer Service Representatives	15.73	278.5	4,380.81
47-0000 Construction and Extraction Occupations	15.24	156	2,377.44
49-0000 Installation, Maintenance, and Repair Occupations	15.17	931.75	14,134.65
51-0000 Production Occupations	16.67	37	616.79
51-6011 Laundry and Dry-Cleaning Workers	10.55	41.5	437.83
51-0000 Production Occupations	16.67	3	50.01
53-3011 Ambulance Drivers and Attendants	14.51	5,942.33	86,223.21
53-3033 Light Truck or Delivery Services Drivers	10.39	660.5	6,862.6
53-3041 Taxi Drivers and Chauffeurs	10.33	2,308.1	23,842.67
Total		27,823.31	315,502.64

Source: Internal reports – Fiscal year 2010.

Note: \$315,502.64 is a net value of volunteer work performed by volunteers, we also considers 12% of benefits as stated by US Independent Sector (\$37,860.32). The gross value of volunteer work performed by PIC's volunteers is **\$353,362.96**.

Figure 1 - Comparison between different approaches to replacement cost applied to PIC.



Source: Internal reports – Fiscal year 2010.

Table 12 – Expanded Value Added of PIC – Fiscal year 2010

	Financial accounts	Social accounts	Combined accounts
Revenues and VVW	864,244.00	395,569.15	1,259,813.15
External expenses	425,628.00		425,628.00
Total value added	438,616.00	395,569.15	834,185.15
<i>Distribution of value added</i>			
Wages and benefits (Employees)	524,095.00		524,095.00
VVW (Society at large)		395,569.15	395,569.15
depreciation (Organization)	20,356.00		20,356.00
Interests (Banks, etc.)	842.00		842.00
Final output (Loss)	-106,677.00		-106,677.00
Total value added distributed	438,616.00	395,569.15	834,185.15
Ratio of total value added to external expenses =	1.03	0.93	1.96

Source: Form 990 for the 2009 tax year beginning 7/01/2010 and ending 6/30/2010 and internal reports.