Monetary value and cost analysis of a youth voluntary program on road safety in Iran

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Abstract

Objectives: Volunteering has great economic and social benefits, but it is neglected due to the voluntary nature of the work. The purpose of this study was to assess the monetary aspect of voluntary activities in the plan of Iranian National Safety and Health for New Year Holidays passengers and analyze cost analysis of the implementation of this plan by youth volunteers.

Methods: In this descriptive-analytical study, 1574 volunteers outlined in this plan were analyzed from Wage Replacement and Replacement Cost approach for monetary evaluation of voluntary activities. In addition, the cost benefit analysis of a Red Crescent voluntary plan is calculated by "value audit and volunteer investment" (VIVA) technique.

Results: In the mentioned road safety plan, the sum of the economic value of volunteering work in the Nowruz passenger's safety and health plan is multiplied by the number of working hours of youth volunteers per day, the number of young people and the average wage was earned at an hour, which was obtained as $ 69885.6. also Viva rate is 10.6$ means every dollar Red crescent spent will cost more than 10$ if it wasn't voluntary.

Discussion: According to the findings, it seems that the voluntary plan for safety and health of New Year holidays passengers had been economically profitable for the Red Crescent population as well as for the government because of its high revenue compared to the its cost.

Introduction

As volunteering works become widespread, it is no longer surprising that governments around the world plan for economic and social benefits of voluntary activities. In the UK alone, voluntary activities have contributed about $ 64 billion to the economy of this country, and in Canada, the economic value of these activities has been raised from $ 16 billion. According to a comparative study that has been recently conducted in 22 countries, the duration that volunteers spend for volunteering activities is equivalent to 5.5 million full-time employees. Of course, it's important to note that the profitability of voluntary activities requires planning, investing, organizing, and training. According to a recent study that has been conducted in Europe, it is estimated that each dollar of investment in voluntary works will return $ 8. Voluntary activities are not a substitute for public services, but are a basic complement to it. Governments are beneficiaries of promoting voluntary activities, which is one of fundamental elements in a healthy and democratic society(1).

Cnaan et al(2) by reviewing more than three hundred different definitions of the term "volunteer", has developed a framework for defining the terms of volunteers. This framework has prepared four dimensions for defining a volunteer. The first dimension is free choice, meaning that the volunteer participates freely and without compulsion in a particular activity. The second dimension is for

volunteers' reward(3). According to the definitions of the volunteer, the volunteer does not receive a bonus. In more general definitions, the volunteer can be rewarded, but he/she should not expect to receive reward. The most general definition of the volunteer is the receipt reward for the cost by the volunteer. In the third dimension, volunteers are defined according to their work structure. Two different domains are separated in a more specific definition, it only accepts voluntary activities in the formal organizational structure, but the more general definition of some activities, including helping neighbors, also includes helping friends. The fourth one after volunteering also involves beneficiaries of voluntary services. A more specific definition accepts only volunteering activities aimed at strangers, but other definitions also accept the benefits of friends and relatives. With regard to the four mentioned dimensions, this paper defines the volunteer, as a person with his/her own will and willingness and without receiving a wage-works for a nonprofit organization and members of the organization and other people benefit from his/her voluntary activities(4).

The safety and health plan for New Year holidays passengers is a plan that is being made every year in the new Iranian holidays (March 21 to April 5). The importance of this plan is clear when we know that more than 15 million Iranians would traveled on holiday (2016) (5) and the purpose of this plan was to increase awareness and change the attitude of all these passengers to reduce high-risk behaviors (Safety Plan Instruction and the health of Nowruz (New Year holidays) passengers). This plan is held with the participation of Red Crescent volunteers across Iran(6-10). Also as children are one of most vulnerable group in emergencies(11, 12), child protection is on of main aims of mentioned plan for New Year holidays passengers.

Researchers began out of market services first in the 20's and early 30's with research in the area of services without a price in the market(13), over the next decades, the monetary value of public goods in general and valuing the volunteer workforce was a specific target for various researchers in the field of economics and policy making. Several initiatives have been undertaken in the last decade to identify the importance and scope of volunteering activities such as the John Hopkins Economic Data Project, The Volunteer Assessment Project, and The United Nations Nonprofit Organizations Action Book, monitored by the Study Center of Civil Society at John Hopkins University(14).

Many beneficiaries are interested in the economic value of volunteer work. For example, social investors are interested in returning their capital. Lobbyists and non-profit activists use economic valuation to highlight the importance of volunteering work in society and the importance of volunteering sections to policy makers(15). They are seeking government subsidies for the voluntary sector, and also the legislators want to know how helpful the appropriated and allocated subsidies have been utilized(16). Economists are interested in the fact that the volunteer sector is much more important in comparison with other sectors. All beneficiaries instead of being more interested in qualitative data, are interested in knowing statistical information and monetary value of volunteering activities(17).

Methods

In this descriptive-analytical study, considering the expenditures and costs of the National Plan of Safety and Health of Nowruz passengers and the data recovered the number of volunteers engaged in the plan initially the monetary value of voluntary activity of Yazd Red Crescent Youth in the National Safety and The health of Nowruz passengers was measured using alternative methods of cost, replacement method and wage replacement method, also cost benefit analysis and cost effectiveness analysis were carried out using the Viva method,.

The data from this method was obtained from interviews and daily reports from Red Crescent youth experts in Yazd province. The compiled information was sent to the right channel responsible for each post and then completed forms were sent to the province.

Two replacement cost approach and replacement wage approach were used in order to monetarily evaluate the plan. Cost replacement method is an input-centric method and focuses on the activity and occupation that has been performed, and measures the value of the volunteers by the cost of substituting one hour of paid work for one hour of volunteers for a comparable task.

The replacement wage approach, that is also known as the Shadow Pricing Model, and directly assesses the activity that is performed in volunteering work(18) and calculates the economic value of volunteers by calculating the hourly wage cost of doing the same work by the workforce(1). The identification of wage and labor market costs will be possible, but the search for this cost and the amount is challenging and time consuming. Therefore, in studies for this method, the average labor cost of the market is considered to be the best outcome for the voluntary work(19).

The replacement wage approach has been used extensively in previous papers and have often been used in industry's average wage or the average of national wage(17, 20).

Cost benefit analysis

VIVA: Volunteer Investment and Value Audit is a method that analyzes the costs and activities associated with the volunteer program and compare it to work in the job market, and this ratio represents the amount of return on investments made related to the volunteers' program(21). The allocation of market value or "shadow wage" represents the amount that the organization would have to pay to the workforce if it did not have voluntary workforce services. The Viva model also calculates the cost-benefit and cost-effectiveness analysis through input measurements (resources used to support the volunteer) relative to the output (the monetary value of the time spent by the volunteer), and also shows the organization's revenues for each dollar spent(22).

The Viva rate (investment on volunteer and economic value of volunteering work) is calculated by following formula(21):

$$\text{Viva} = \frac{\text{economic value of volunteer}}{(\text{costs that have been done for volunteer})\text{the investment amount of volunteer}}$$

Results

In the plan of safety and health of the Nowruz (new year holidays) passengers in Yazd province, 27 fixed posts were forecasted at the ports of entry and exit of the cities in the province for 16 days, that at each of these stations, two persons provided voluntary services twelve hours per day. Also in the child-friendly space that the 20-stations were launched in the area of plan for it, 20 trainers co-operated voluntarily on eighteen days. The number of volunteers in the plan was 1574, that although the cost of food and transportation costs was paid only for Nowruz co-workers. Total number of aid workers were 896 youth volunteer.

According to data presented in Table 1, the Yazd Red Crescent Population has spent $ 6547.7 on young people volunteering for the National Safety and Health Plan of Nowruz Passengers, which includes food, travel, equipment, supplies and training costs for each person.

Table 1) Yazd Red Crescent Population spent costs for Youth of Safe and Healthy Plan for Nowruz passengers

Costs	Description	Number	Spent cost (dollar)
Food	The minimum cost that is paid to a volunteer for a hot meal at a 12-hour post is $ 4.61 for each person.	896	4135.4
Transportation	The minimum cost that is paid to travel to the post office or Red Crescent Branch is $ 1.53 for each person.	896	1378.5
Equipment and Supplies	The equipment that had been necessary for the presence of a volunteer in a plan, such as an identity cover and ... for each post is $ 31.9	27(Stations)	861.5
Training	The cost that has been spent for training volunteers at each post		172.3
Sum			6547.7

In table 2 and 3, the economic value of the work of the volunteer was examined, which means that if it was intended instead of recruitment of young people in order to hold the safety and health plan of the Nowruz passengers, acted to employ personnel then how much cost should be paid? The minimum wage per hour based on the minimum wage of employees in Iran in 1994 has been stated $ 1.43 per hour.

At the same time, it has been shown in Table 2 what kind of staff should be used if no young volunteers were used. The three main activities informing and assessing the health of passengers (including measuring the blood pressure of passengers) and as well as working in a child friendly environment have been selected for determining the economic value.

The second column of Table 2 would mean what specialties would be used instead of using young volunteers to hire an employee. The number of volunteers is the number of young people who

volunteered to work in the designated posts in the sixteen days of the Nowruz passengers' Safety and Health plan in Yazd province. In total, 1574 volunteers, day working young volunteer have acted in three different branches.

The sum of the economic value of volunteering work in the health and safety plan of Nowruz passengers has been obtained by the wage replacement approach (including the minimum wage) in Table 2 from the multiplication of the number of hours of youth volunteering per day, the number of young people and the minimum wage per hour. In this regard, the monetary value of voluntary activity of Yazd Red Crescent youths during the Nowruz period was calculated $ 28889.04 in the (minimal) wage replacement approach.

Table 2: Evaluation of Voluntary Activities of Yazd Red Crescent youths in National Plan of Health and Safety of Nowruz 2016 Passengers in Wage Replacement Approach

Activity	Position (in case of employment)	Minimum wage per hour to US dollar	The number of volunteer persons	The rate of working hours per day	Valuation in the wage replacement method
Inform and guide passengers	Clerk	1.43	1024	12	17743.44
Measuring the health of passengers (blood glucose and blood pressure)	Nurse	2.3	180	12	4968
Work at child friendly space	Kindergarten trainer	1.43	360	12	6177.6
Sum					28889.04

In Table 3, which shows the calculation by wage replacement approach (by taking into account the average wage received by the Red Crescent staff), the sum of the economic value of volunteering work in the Nowruz passenger's safety and health plan is multiplied by the number of working hours of youth volunteers per day, the number of young people and the average wage was earned at an hour, which was obtained as $ 69885.6.

Table 3: Evaluation of Volunteer Activities of Yazd Red Crescent Youths in National Plan of National Safety and Health of Nowruz Passengers by Wage Replacement Approach

Activity	Position (in case of employment)	Minimum wage per hour to US dollar	The number of volunteer persons	The rate of working hours per day	Valuation in the wage replacement method
Inform and guide passengers	Clerk	3.7	1034	12	45909.6
Measuring the health of passengers (blood glucose and blood pressure)	nurse	3.7	180	12	7992
Work at child friendly space	Kindergarten trainer	3.7	360	12	15984
sum					69885.6

Therefore, considering the method of calculating the Viva rate that was already mentioned, this rate is obtained by taking into account two types of monetary valuations as follows:

VIVA (in the case of monetary valuation in the wage replacement approach by considering the minimum wage)

$$= \frac{28889.04}{6547.7} = 4.4$$

$VIVA$ (in the case of monetary valuation in the wage replacement approach by considering the average wage)

$$= \frac{69885.6}{6547.7} \cong 10.6$$

Meanwhile, hypothetically if young volunteers were not used in the Nowruz passenger's safety and health plan and full-time employees would be used, then several people would be employed. By calculating in the following method, it has been determined that 157 full-time employees will need to be employed to hold the safety and health plan for Nowruz passengers in Yazd province. We suppose that the length of the work period is 16 days (the duration of the period of the plan for the safety and health of passengers in Nowruz), and since the working hours in Yazd province for employees are 7.5 hours. Therefore, the number of employees required is obtained by dividing the number of hours of plan by approved hours and the number of the days of the plan.

$$\text{sum of volunteering hours of plan}$$
$$= \text{the number of volunteers} \times \text{the rate of volunteering hours per day}$$
$$= 1574 * 12 = 18888$$

$$\text{the number of employees in the case of non use of volunteer}$$
$$= \frac{\text{sum of volunteering hours of plan}}{\text{the number of plan days} \times \text{working hours of employees}}$$

$$\text{the number of required employees in the case of non use of volunteer} = \frac{18888}{16 \times 7.5}$$
$$= 157.4 \cong 157$$

Discussion

The findings of this research showed that the economic value of volunteering activities is significant and, besides, the findings showed that the use of different methods could greatly change the results, meaning that the wage replacement approach shows nearly three times the increase in economic value then wage replacement. Similarly, in other words, Kennan et al in their paper, pointed out that the determination of a figure for all volunteers would have problems, such as exaggeration or underestimation of volunteering activity. One of the problems of the wage replacement approach was to find equivalent activities with their related businesses and those professionals who had higher experience, science, and skills would be calculated equal to the wages of non-trained non-skilled volunteers and their financial value has been equally assumed.

The monetary valuation of Yazd Red Crescent Youth volunteers in the National Plan of Health and Safety of Nowruz passengers was conducted in two ways: wage replacement (minimum) and replacement of wage (average method). In the wage replacement approach, which has been considered the minimum wage, we see a lower monetary valuation for volunteering youth, and this approach shows that if the

Yazd Red Crescent Population intends to hire new people instead of using volunteers in this plan what costs should be incurred. On the other hand, the amount obtained from the wage replacement approach implies that if the existing employees of the Red Crescent Society of the province were to be used with the experience and skill in the plan, what amount should be paid to it, of which this figure is due to the higher average wage of employees of the province's population that has been obtained from the minimum multiplier wage of the other approach.

On the other hand, according to the data available in the finding section, it can be found that if the volunteer forces are not used, it will require 157 full-time employees to work on the safety and health plan of the Nowruz passengers in Yazd province.

Also, for the cost benefit analysis of this plan, which the Viva method was used (investment on volunteer and economic value of volunteer work), if the valuation is carried out by wage replacement approach, the Viva rate will be 4.4, which means that for each dollar cost created by the Red Crescent Population in the voluntary plan for health and safety of Nowruz passengers will return $ 4.40 a year to the Red Crescent in 2015. If the wage rate is calculated using this method, the Viva rate will be around 10.6 and this means a high return on this voluntary plan and the high value of this activity. Therefore, the higher the viva rate, the more it returns, and this is where the high value of volunteering activity is determined. In addition to the high monetary value of voluntary activities, this figure represents cost control in this plan, which ensures its survival and economic sustainability during the country's economic problems.

Along with this strength, there was a limitation that finding professional jobs associated with conducted activities in volunteer project is a difficult matter, which Vallencourt(23) pointed out in his researches on this topic .

Conclusion

According to the findings, it seems that the voluntary plan for safety and health of New Year holidays passengers had been economically profitable for the Red Crescent population as well as for the government because of its high revenue compared to the its cost. Furthermore, by comparing the cost of volunteers and recruited personnel, it seems that using volunteers has an impressive reducing of total costs and additionally the organizations that would recruit volunteers have lower indirect cost.

Declarations

Acknowledgements

Conflict of interest

Authors declare no conflict of interests.

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