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Abstract

This study deals with a specific volunteering aspect revealed in the German refugee crisis 2015/16. German federalism prescribing interjurisdictional assignments of tasks for designing, financing and implementing services for refugees and their geographic distribution have made municipalities and cities primarily responsible for solving problems of refugees' accommodation, integration and health care. Based on a survey recently carried out in the district of Erding, it firstly demonstrates distinctive characteristics of the individual volunteers engaged in such related local activities (gender and age; income structure; donation types; working hours), followed by an attempt to measure economic values of volunteering. Despite some methodological weaknesses, this study highlights the monetary significance of volunteers' hidden contribution to overcoming the crisis and the relatively huge scope of possible savings in local expenditure, compared to an assumed situation if such voluntary activities were fully substituted by those of full-time civil servants.

JEL-Codes: D640, D910, E650, H720.

Keywords: volunteer activity, German refugee crisis, economic value of volunteering, local government expenditure, district of Erding.

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Introduction

In September 2015, German Chancellor implemented a “welcoming” open-door policy toward the refugees who made their way into Europe. However, images of the refugee crisis overwhelmed Germany soon when more than 1 million people came to the country in 2015/16, and many Germans started to question the political optimism of Merkel administration “*Wir schaffen das*” (see also Sola 2018; Jäckle and König 2017). Refugees have disproportionately settled in large German municipalities and cities, due also in part to better job prospects and social, “diaspora” connections provided there.¹ Eventually these communities – rather than national government – should solve enormous problems related to accommodation and integration of new arrivals, including: “how to house, educate, train, and integrate individuals from different cultures, with varied education levels, who often need emergency health care and special services” (Katz et al. 2016, p. 1). Large numbers of individual volunteers have been engaged in a wide range of “unpaid” activities, from distributing food and medical aid to waiting for refugees in front of the national registration authority, to helping out at refugee shelters, teaching German, and long-term integration assistance. Many of them can also be classified as the so-called “spontaneous unaffiliated volunteers” who are willing to assist community members and civil servants but who rather lack consistent training (Twigg and Mosel 2017; Kulik et al. 2016; Harris et al. 2017).

Compared to the previous references concentrated on volunteerism in religion, health, environment and school-related areas (see Maki and Snyder 2015), our study tackles a more specific volunteering aspect revealed in the German refugee crisis. Following the investigations of general characteristics related to the involved volunteers (gender, age and income structure; donation types; time requirements), this paper attempts to calculate the monthly personnel and material costs as the opportunity costs of volunteering (Sajardo and Serra 2011), which appear to relieve the local government financial bottleneck thanks to such volunteers’ commitment. This empirical investigation is mainly backed by the critical assessment of conventional crowding-out theory of voluntary provision of public goods (Duncan 2004), combined with a warm-glow philanthropist consumption model (Romano and Yildirim 2001). In this context

¹ This is also the case in most EU countries. “Large cities [in Europe and especially in Germany] are hubs of economic activity, offering jobs requiring a broad range of education and skills to new residents who are also attracted by pre-existing networks of individuals of the same nationality or religious affiliation” (Katz et al. 2016, p. 3).

one can postulate that governments encourage volunteerism as a substitute for their declining role in providing social services, which consequently leads to savings in government expenditure.

High-quality, local and regional data on volunteer activities in refugee matters are not yet available in Germany. For this reason, our empirical research adopts the statistics obtained by surveys conducted among the volunteers in the district of Erding, near Munich. In 2015/16 Erding was one of the most important initial reception and further distribution centres of refugees who entered Germany. The data regarding the performance of the volunteers were collected by means of an online survey (based on the questionnaire with 14 questions) in the period from 15 November 2016 to 15 December 2016. According to the District Office of Erding, the Agency for Work and the Job Centre, the total number of volunteers in this area reached around 450 in December 2016. A number of 130 volunteers in the district of Erding took part in the survey. Two major questions included in the survey are related to (1) the types of activities and services which the volunteers in the district of Erding provided; and (2) the scope of time and resources the volunteers invested in their commitment to helping refugees.

Following this introduction, the second section delivers some basic theoretical explanations about the contribution of volunteerism to the local finance, whereas different approaches are also briefly compared with which the economic value of volunteering can be calculated. The third section shows an overview of the German refugee crisis and highlights the extra burden caused to the cities and the municipalities in terms of introducing the spatial distribution method of refugees, the allocation of responsibilities and costs among different government tiers, as well as the major activities and characteristics of individual volunteers. The fourth section is a case study for the district of Erding: based on the survey results cautious estimations are primarily made here under the various assumptions, which suggest some first ideas related not only to the value of volunteers' work contributed to overcoming the German refugee crisis since the period 2015/16, but also to the extent to which the district government of Erding has been able to financially save compared to the situation that the refugee-related activities of volunteers were substituted by those of the full-time civil servants. The final section summarizes the main research findings and concludes.

Basic Theoretical Background

The volunteerism has grown steadily in most developed countries during the past decades and is becoming increasingly more complex at the same time. One of the crucial factors in its expansion is the scheme of collective finance and private provision of key welfare state services, since “volunteers accept to do unpaid work which is performed free of cost in order to benefit the community” (Sajardo and Serra 2011, p. 873). The theoretical explanation on the volunteerism as a substitute for governments’ declining role in providing social services is primarily based on the conventional crowding-out theory of voluntary provision of public goods (Duncan 2004; Freise 2017), combined with a warm-glow philanthropist consumption model (Romano and Yildirim 2001).

The former theory suggests that if people are concerned with the total amount of public service offered, they will treat government spending on such goods and services as substitutes for their own donations to the provision of similar services. Following this logic, Warr (1983) and Roberts (1987) argue that a complete crowding out is likely to occur (e.g. one dollar of government subsidies will replace one dollar of donations), if donors are pure altruists – i.e. their only concern is the total amount of public goods available (see also Dehne et al. 2008). The latter warm-glow utility specification additionally introduces a donor’s personal satisfaction derived from her (or his) own contribution into the utility function, so that she (or he) gets utility not only from the total provision of public goods but also from her (or his) own contribution. In this context citizens’ voluntary and charitable activities appear to be stimulated by the “intrinsic motivations” characterized by a “prosocial disposition” toward helping others and communities (Clary et al. 1996; Houston 2006; Maki and Snyder 2015; Banuri and Keefer 2016; Kulik et al. 2016). In this case government spending on public goods does not necessarily crowd out private donations one for one, although some degree of crowding out appears to be still possible (Simmons and Emanuele 2004; Dehne et al. 2008). These two theories deliver some basic explanations why governments tend to stimulate volunteerism, which can consequently lead to savings in government expenditure (see also Haß and Serrano-Velarde 2015).

On the other hand, it should also be borne in mind that the studies like Schiff (1985), Hughes and Luksetich (1999), and Brooks (2003) demonstrate the possibilities of

emerging crowding-in effects, highlighting that an increase in government spending on public goods can stimulate an increase in private donations because donors assess the increased spending as a signal that their donations would now be more effective and generate a higher marginal product (Dehne et al. 2008).

Volunteering is often perceived as donations of time or labour, but it can also be donations of money or goods. Despite the problems related to the poor availability of data,² valuing volunteer time has traditionally been of interest in volunteering research (Gaskin 1999; Mook et al. 2005; Ironmonger 2008), whereas the monetary value of latter types of donation can be more easily obtained. Repeatedly the calculation of the economic value of volunteering via converting the value of volunteering time into monetary terms is not only a useful device for measuring the contribution made by volunteers to society (Knapp 1990), but also emphasise that voluntary work can play a significant role for the local and national governments' expenditure behaviour and budgetary decision-making.

It is not an easy task, but several methods have been applied to measure a monetary value of the output benefits from the time spent in voluntary work. The so-called Volunteer Investment and Value Audit (VIVA) system in the UK puts a value on the resources used to support volunteers (management staff costs, training, recruitment, insurance and administration) in relation to the value of volunteer time. "This approach quantifies the economic investment that organisations make in their volunteers. [...] The VIVA ratio, which states that for every dollar invested in volunteers there is a return of X dollars in the value of the volunteers' work, is calculated by dividing the value of volunteer time by organisational investments" (Ironmonger 2008, p. 4). In a similar context the so-called "replacement cost calculation approach for the voluntary organisation" attempts (using a general benchmark salary³ or under the consideration of different employment categories and varied remuneration levels) to identify the money value which the organization would have to pay for the volunteering

² More precisely, "the contribution made by volunteer work has been absent from the micro- and macroeconomic accounting records and especially from the usual major macroeconomic aggregates such as GDP [...] This absence is a result of the dominant concept in economics according to which the economic indicators should be based exclusively on entries that can be represented in monetary terms and can be sold on the market (market sector) or counted in the public sector economy (nonmarket sector)" (Sajardo and Serra 2011, p. 876).

³ See e.g. United Nations (2002 and 2003).

services, if these services were performed by paid workers (see also Englert and Helmig 2018). Yet the application of comparable remuneration for both volunteers and paid worker appears to be rather problematic due to the prevailing labour productivity and efficiency differences: in this context Salamon (1987) argues that the voluntary sector is largely endowed with the nonprofessional or amateur nature of its actions, based on the fact that using unpaid (volunteer) labour generates a lower level of commitment or performance of their tasks (see also Sajardo and Serra 2011).

An alternative method (endowed with some overlapping features of the aforementioned replacement cost method) is calculating the time spent in an unpaid activity at a “comparable” market wage. The wage chosen is either (1) the “opportunity cost” of the time the persons involved in unpaid work could have obtained if they had spent the time in paid work; or (2) the “specialist wage” that would be needed to pay a specialist from the market to carry out her/his specific activity, or (3) the so-called “generalist wage” that a general volunteer would be paid to do the unpaid work. The “net” opportunity cost widely measures a volunteer’s work at the after-tax wage rate less work-related expenses plus income by way of employer cost of superannuation and fringe benefits (Ironmonger 2008). Yet this calculation method also suffers from some weaknesses which include: firstly this approach “ignores that because [many] volunteers do not engage in any paid work, either because they are [retired] or because they have never been part of [active working population e.g. students or unpaid houseworkers], there is [hardly any suitable market] monetary cost of opportunity. [Secondly,] the value that each volunteer places on his or her free time is subjective, is hard to compare from one individual to another” (Sajardo and Serra 2011, p. 881).

German Refugee Crisis: Spatial Distribution of Refugees, Cost Allocation among Different Government Tiers and the Role of Volunteers

In 2015, Germany adopted a “welcoming open-border” policy and took in 890,000 refugees and received more than 476,000 formal applications for political asylum. By 2016, however, its government reimplemented the border controls. In addition, thanks to the agreement made between the EU and Turkey in March 2016 Greece was allowed to send back those “irregular migrants” to Turkey, which in turn has made the

movement of refugees from the Middle East to Western Europe uneasy. As a consequence, the total number of refugees arriving in Germany in 2016 decreased to 280,000 (Sola 2018). Overall, such an inflow of the refugees within a short time period has led to an increase in German population by more than one percent, mainly driven by the arrival of young men particularly from Syria, Iraq and Afghanistan:⁴ approximately 65% of all asylum seekers in Germany between 2015 and 2017 were male; around 50% were below the age of 24, and about a quarter of all refugees were children below the age of 15 (see also Trines 2017).

As soon as asylum seekers register when they arrive in Germany, they are distributed to the individual federal states (*Länder*) using the so-called *Königsteiner* quotas, of which annual calculation is based on tax revenue (rated at two-thirds) and population (with a third share assessed) of the states. The difference in surface area among the states is neglected in this context - that is the reason why refugee accommodation is particularly difficult in the city-states of Berlin and Hamburg (Geis and Orth 2016). For the year 2015, the highest *Königsteiner* distribution quota amounted to 21.24% for North Rhine Westphalia, followed by 15.33% for Bavaria, 12.97% for Baden-Württemberg, 9.36% for Lower Saxony, 7.32% for Hesse, 5.10% for Saxony, 5.05% for Berlin, etc.

Even within the respective states, a separate distribution mechanism exists. In Bavaria, for example, the geographic allocation of refugees occurs, based basically on the relation to the population of Bavaria, firstly on the administrative districts (*Regierungsbezirke*), and then further on the districts (*Landkreise*) as well as municipalities and cities (see also Geis and Orth 2016). Regarding the different shares among the administrative districts in Bavaria, Upper Bavaria is given 33.9% of the refugees, followed by Swabia 14.5%, Central Franconia 13.5%, Lower Franconia 10.8%, Lower Bavaria 9.6%, Upper Franconia 8.9% and the Upper Palatinate 8.8%. Within the administrative districts, it is once again determined which part of the refugees the individual districts and municipalities should receive. Particularly large cities like Nuremberg and Munich stand out, each providing accommodation for one third of the refugees in their own administrative district.

⁴ The dangers of the passage to Europe give an advantage to young males (Trines 2017).

According to German federalism the responsibilities for designing, financing and implementing services for refugees are distributed among the national government, states and municipalities including also cities (Hummel and Thöne 2016). Table 1 suggests that a broad scope of tasks and substantial burdens related to the refugee matters lie on the state and municipal level (see also Kronenberg 2017). Those city-states like Berlin, Hamburg and Bremen, “by virtue of their unique status, are required to do double duty, tackling the full array of tasks that would normally be divided between the state and municipal level” (Katz et al. 2016, p. 14).

Table 1 Distribution of Responsibilities Concerning Refugees among the Different Tiers of Government in Germany

Government level	Responsibilities
National	<ul style="list-style-type: none"> • Initial registration • Reception and processing of asylum applications • Integration classes • Job market integration • Unemployment welfare
States	<ul style="list-style-type: none"> • Registration • Creation and maintenance of initial reception centres and emergency reception centres (initial health check) • School affairs expenses according to asylum welfare bill • Health care for refugees in central initial reception centres • Transportation of refugees • Security staff • Initial care and subsequent care of unaccompanied minors
Municipalities	<ul style="list-style-type: none"> • Registration • Creation of consecutive reception centres • Maintenance of reception centres • Health care • Local integration measures (e.g. through municipal neighbourhood houses, sport clubs) • Coordination of volunteer efforts • Transportation of refugees • Security staff

Source: Katz et al. (2016).

More precisely German large cities and municipalities are assigned to carry out the following tasks in order to effectively integrate new arrivals in the society, which include:

- a) Municipalities must provide both short-term housing for asylum seekers and long-term affordable housing possibilities for refugees – a very difficult responsibility for large urban areas such as Berlin, Munich and Hamburg, which already face rapidly growing housing prices and the shortage pressure.

- b) Quick integration of refugee children into the public education system is crucial for long-term outcomes. Moreover, working proficiency in the German language is the prerequisite for the true economic and social integration. For refugees above school age, the burden for instruction can fall to nonprofits or civic groups.
- c) For working-age adults' integration, entering the workforce should be achieved as soon as possible, which offers regular income, increases language acquisition, and provides a sense of belonging.
- d) Refugee populations are at increased risk for serious mental health trauma, including post-traumatic stress disorder, depression, and anxiety which, left untreated (by appropriate health and medical care), can hinder the integration prospects.
- e) Local authorities must ensure access to services for refugees (including financial services like bank accounts and credit), of which difficulties are caused by language and cultural barriers, in addition to insufficient documentation or status.
- f) Municipal authorities have also to maintain a safe and secure environment for both local residents and refugees.

Due to the sharp rise in the number of refugees in 2015, the states and municipalities in Germany were also totally overwhelmed (see e.g. Table 2 for the case of city-state Hamburg) and immediately demanded financial supports from the federal government. They initially estimated the total cost of refugees in the states and municipalities at 20 billion euros per year, but foresaw a possible increase up to 30 billion euros in four years. In September 2015, it was agreed that the federal government would provide the states with 670 euros as a monthly flat rate per refugee. German federal government spent at least 20.8 billion euros on aid to refugees and integration in 2017 (= 6.4% of the total federal government expenditures). In this context the states and

municipalities received around 6.6 billion euros,⁵ and almost seven billion euros went to fighting the causes of flight. In comparison 20.3 billion euros had been spent for the same purposes in 2016 of which share accounts for 6.3% of the total federal government expenditures (Bundesfinanzministerium 2018).

Table 2 Costs of Different Types of Services Delivered to Refugees by Hamburg City-State in 2015

Services	Costs (in million euros)
• Creation and maintenance of initial reception centres and emergency reception centres	147.4
• Health care for refugees in central initial reception centres	6.8
• Health care for refugees in consecutive reception centres	45.0
• Transportation of refugees	0.3
• Security staff	20.1
• Creation of consecutive reception centres	126.0
• Maintenance reception centres	37.3
• School affairs	32.0
• Expenses according to asylum welfare bill ^(a)	63.6
• Initial care and consecutive care of unaccompanied minors	107.7
• Total	586.2 ^(b)

Note: ^(a) In Germany asylum seekers are currently entitled to 15 months of asylum welfare, which include a monthly allowance of 135 euros per single adult living in a reception centre plus the costs of food and housing (see *Asylbewerberleistungsgesetz*). ^(b) This sum is equivalent to approximately 5% of Hamburg's total government expenditure in 2015.

Source: Hamburg City Government; Katz et al. (2016).

In this context it has often been highlighted that the engagement of large number of individual volunteers has not only enabled to better cope with the refugee crisis but also significantly contributed to the savings of government expenditure in Germany (Katz et al. 2016; TNS Infratest Politikforschung 2016). Repeatedly the commitment of volunteers presently ranges from local neighborhood initiatives, educational programs to professional counseling. Most volunteers help with administrative proce-

⁵ In implementation of the federal and state decision on asylum and refugee policy of 24 September 2015, the federal government has made the following relief for the states and municipalities: (1) subsidy to the expenses for asylum seekers – from the registration to the issuing of a decision by the Federal Office for Migration and Refugees (BAMF); (2) a lump sum of 350 million euros per year for unaccompanied minor refugees; (3) 339 million euros in 2016 and 774 million euros in 2017 for childcare; and (4) 500 million euros in 2016 and 2017 for social housing. In addition, in July 2016, the federal government decided to further support the relief of the states and municipalities with: (5) an integration package of two billion euros per year in 2016 and 2017; (6) a total of 1.3 billion euros for accommodation costs for asylum and protection beneficiaries; (7) another 500 million euros for social housing promotion; and (8) 226 million euros for the expansion of day care for children (Bundesfinanzministerium 2018).

dures, communication with authorities and support through language courses. A substantial share of volunteers is involved in social and integration counseling or help with finding accommodation. With these activities, Karakayali and Kleist (2015) suggest that the volunteers often fill in the gaps in which the state currently fails to take care, but insist, on the other hand, that such volunteers' efforts should ideally be supplements in the context of state-voluntary cooperation – not fully replacing the government tasks and responsibilities in emergencies (see also Coule and Bennett 2018). Who are all these altruistic refugee-helpers in Germany? According to those 460 sample volunteers who took part in the nation-wide survey shown in Karakayali and Kleist (2015), they can be characterized as follows:⁶

- A surprisingly high share of about 70% of the survey participants is female.⁷
- Nearly 90% have a high school diploma or an advance technical college entrance qualification, while the proportion of student volunteers is also high with 23%.
- Nearly 80% are presently enjoying financial stability and relatively safe living conditions.
- A good 40% of the volunteers are currently employed, while just under 20% are retirees.
- One third of respondents have a migrant background of their own, whereas almost 50% stated that they were not religious.

Value of Voluntary Refugee Helpers and Its Contribution to Local Government Expenditure: Case of Erding District

High-quality, local and regional data on volunteer activities in refugee matters are not yet available in Germany. For this reason, our empirical research adopts the statistics

⁶ Some similar characteristics of German volunteers are also identified by TNS Infratest Politikforschung (2016) of which analyses are based on 760 interviews with the voluntary refugee-helpers.

⁷ According to Lanfranchi and Narcy (2015), one of the factors shaping the overrepresentation of women in non-profit sectors is greater offerings of family-friendly practices accompanied by greater and flexible access to part-time jobs and involvements with shorter workweeks. Empirical research carried out by Evans et al. (2018) finds a positive correlation between women's empowerment and the non-profit sector development.

obtained by surveys conducted among the volunteers in the district (*Landkreis*) of Erding, near Munich.⁸ The Erding district consists of two cities: Erding (36,000 inhabitants) and Dorfen (14,500 inhabitants), and further 24 small municipalities. In both “peak” years 2015/16 Erding was one of the most important initial reception and further distribution centres of refugees entering Germany. In this period, up to 60 refugees per week arrived in the district which operated over 100 refugee-shelters at the same time. For example, the vocational school gym in Erding city served as an emergency shelter of the government of Upper Bavaria. Yet, in 2017 a few new refugees came to the district of Erding. Nevertheless, there were still more than 700 people in the asylum procedure and altogether 1,176 refugees were living there in January 2018. In spite of such a diminishing trend of refugee numbers, 46 civil-servant posts in the district office of Erding are at present directly or indirectly concerned with the management of asylum tasks, which, in turn, cost additionally more than two million euros per year.⁹

The data regarding the performance of the volunteers in the district of Erding were collected by means of an online survey (based on the questionnaire with 14 questions) in the period from 15 November 2016 to 15 December 2016. The most important questions included in the survey are:

- What services do the volunteers in the district of Erding provide?
- How much time and resources do the volunteers invest in their commitment to helping refugees?

According to the district office of Erding, the Agency for Work and the Job Centre, the total number of volunteers in this area reached around 450 in December 2016, of which 130 volunteers took part in the survey.

The characteristics of many refugee-helpers in the district of Erding match relatively well with those of the so-called “super-volunteers”, defined as those well-educated individuals at the age of above 60 who volunteer 10 or more hours per week (Einolf

⁸ The district of Erding (with about 135,000 inhabitants on an area of 870 km²) is located about 30 kilometers northeast of the Bavarian state capital Munich. Today it still comprises a large rural area, of which production activities can be largely characterized as agriculture, crafts and small and medium-sized businesses. Apart from the spill-overs resulted from the growth of Munich, the opening of Munich Airport Franz Josef Strauss in the Erdinger Moos in 1992 led to a noticeable increase in the population and the settlement of modern services and high-tech industries in this area.

⁹ See interview with the District Administrator (*Landrat*) Martin Bayerstorfer – <https://www.merkur.de/lokales/erding/erding-ort28651/1176-asylbewerber-im-landkreis-keine-neuen-fluechtlinge-mehr-9519560.html>.

and Yung 2018). The following similarities and differences of major characteristics can be identified when they are compared to those of the nation-wide findings in Karakayali and Kleist (2015):

- The dominance of female volunteers prevails also in Erding district (with a share of more than 65% of survey participants).
- In the district of Erding 56.3% of the voluntary work is carried out by the individuals with a net income of more than 1,500 euros per month. A further 14.7% is accounted for by the net income group of 1,000-1,500 euros per month – it is also likely that more than 70% of the volunteers in Erding district also assess their financial situation rather stable (see also below).
- The commitment of young volunteers is weaker in Erding: most survey participants are older than 41 years, whereas the share of volunteers over 50 years accounts for 54%.
- Most volunteers in Erding district work at least once a week or more frequently (81%), and the 130 respondents perform altogether about 3,000 hours of volunteer work each month, which also strongly concentrated on medical accompaniment (9%), assistance on the matters related to public authorities (15%), learning support (26%), and other matters (50%).
- On average, a volunteer is active for 24.4 hours a month in the district of Erding, while 55% of the refugee-helpers work for up to 30 hours per month – also largely comparable to 33% of respondents with 3-5 hours per week and 21.4% with even 6-10 hours on the national level demonstrated in Karakayali and Kleist (2015). Projected to the 450 helpers in the district of Erding, this results in approximately 10,000 hours per month and 120,000 hours per year in the peak period of 2015/16. Assuming that a full-time civil servant works approximately 1,615 hours per year,¹⁰ around 82 full-time positions would have to be created for the 120,000 hours worked.

The detailed classification of survey volunteers in the Erding district according to the monthly net income is as follows: (1) 7% for 'less than 500 euros'; (2) 17% for '500-1,000 euros'; (3) 15% for '1,000-1,500 euros'; (4) 22% for '1,500-2,000 euros'; (5) 15% for '2,000-2,500 euros'; (6) 6% for '2,500-3,000 euros'; (7) 13% for 'more than 3,000 euros'; and (8) 5% for 'no information available'. Under the assumption that this information is representative for the net income structure of volunteers, one can also carry

¹⁰ See also www.skverlag.de/fileadmin/images_content/...rd.../RDM18_Soll-Jahresarbeitszeit.xls.

out a rough estimation of the total opportunity cost of 450 voluntary refugee-helpers in the district of Erding in terms of net income. In this case the economic value of work carried out by an average volunteer tend to approximately range between 10 to 13 euros per hour expressed in terms of net income, which would in turn correspond to around 14 to 18 euros per hour measured in terms of gross income.

Repeatedly an average volunteer is active for 24.4 hours monthly. Although the income level of a larger share of volunteers is probably well above the minimum wage, the current minimum wage of 8.84 euros per hour is applied for the calculation under the consideration of some less-sophisticated natures of a large share of volunteer activities¹¹ as well as due in part to the simplicity reason. Moreover, the volunteers also brought in “material” donation, of which monthly value is estimated to be 66.2 euros on average. The type of material donation is rather diverse: for example, private cars were used, the volunteers worked with their own PC, printer, telephone, etc. In addition, tickets, stamps and groceries have also been purchased. From the value of the labour work performed free of charge and the benefits in kind a monthly performance of an average volunteer amounts to approximately 281.9 euros (= 215.7 euros + 66.2 euros). However, it should be borne in mind that this sum does not include the social security contributions of 42.9 euros (= 19.9% of 215.7 euros). Furthermore, volunteers do not receive the continued payment in the case of illness or benefits such as the paid vacation. This would increase personnel costs by a further 4% for sick leave (= 0.04 x 258.6 euros = 10.3 euros) and 8% for paid minimum vacation (= 0.08 x 258.6 euros = 20.7 euros) – see also Federal Statistical Office (2017).

In other words, even though the economic value of an average volunteer’s performance is calculated based on the “minimum” compensation rules and their application prescribed in the German employment law, a substitute of this average volunteer by a normal employee subject to the German social insurance scheme would cause monthly personnel costs of 290 euros, in addition to the monthly material costs of 66.2 euros. Projected on the total number of 450 voluntary refugee-helpers involved in the district of Erding, Table 3 summarises the possible monthly and annual opportunity costs.

¹¹ The so-called skills-based volunteering aspects are not adequately considered in our calculations. For more about this type of volunteering in detail – see Maki and Snyder (2015); and Steimel (2018).

Table 3 Opportunity Costs of Voluntary Work Performed by 450 Refugee-helpers in the District of Erding

Opportunity costs	Monthly	Annual
Personnel costs	130,500 euros	1,566,000 euros
Material costs	29,799 euros	357,588 euros
Total	160,299 euros	1,923,588 euros

Source: Authors' own calculation.

As already shown above, if the calculation is solely based on the number of working time, the district government of Erding should probably employ extra 82 people in order to fully substitute these voluntary helpers. Let us additionally assume now that the aforementioned services made by the individual voluntary refugee-helpers can be rendered more efficiently through professional staffing, better organisation and process optimization by the local government, which in turn requires the recruitment of additional personnel to carry out such “additional public” services. Furthermore, the total opportunity costs for such volunteer work (Table 3) are considered in the calculation as a sort of financial restriction.

Table 4 Annual Wage of Full-time, Low Pay-group Local Government Employees in 2017

Gross monthly wage	2,109.19 euros
12 x gross monthly wage	25,310.28 euros
+ Annual special payment	1,730.80 euros (= 82.06% x 2,109.19)
= Gross annual wage	27,041.08 euros
+ Social insurance: employer's contribution	5,273.01 euros (= 19.5% x 27,041.08)
+ Additional insurance scheme for civil servants	1,744.15 euros (= 6.45% x 27,041.08)
= Total annual labour cost	34,058.24 euros

Source: <http://oeffentlicher-dienst.info/tvoed/vka/>; <http://www.lohn-info.de/sozialversicherungsbeitraege2017.html>.

Table 4 demonstrates an example of the gross salary calculation for the low pay-group civil servants (without professional experiences) working in German local government in 2017. At present, for a full-time employee with the lowest civil servant payment-grouping, the annual gross labour cost reaches approximately 34,000 euros. In other words, additional 45 to 55 full-time public jobs are assumed to be required in the district of Erding for the substitution of the volunteers' contribution and at the same time should be financed in order to match the economic value of their efforts made in the peak period of 2015/16: this would result in annual personnel costs of 1.6 million euros

(without considering the material cost of 360,000 euros) and 1.9 million euros of personnel and material costs together for the lower payment group of local civil servants, respectively. This calculation result is also well comparable to the real situation mentioned above: 46 civil-servant posts in the district office of Erding are currently dealing with the asylum tasks and refugee matters, which is estimated to create an additional local expenditure burden of more than two million euros annually.

To be sure one can still question whether the survey results represent the “true” income level and structure of the volunteers in the district of Erding and all the activities that volunteers perform and their substitute could be assessed as those carried out by the minimum-wage group and the low-wage civil-servant group. Nevertheless, this rather simple but cautious calculation delivers some first ideas related to the value of volunteers’ work which has significantly contributed to overcoming the German refugee crisis since the period 2015/16.

Conclusion

This study deals with a specific volunteering aspect revealed in the German refugee crisis in 2015/16, initiated by the implementation of the country’s open-door policy in September 2015 toward the refugees who made their way into Europe. German federalism prescribes the interjurisdictional assignment of responsibilities for designing, financing and implementing services for refugees, while the *Königsteiner* quotas calculated annually, based solely on tax revenue and population of the states, determines the distribution of total number of refugees among the individual states. Consequently, the refugees have disproportionately settled in German municipalities and cities, which have primarily been responsible for solving enormous problems related to accommodation, integration and health care of refugees. Individual volunteers have mainly been engaged in such related local activities, ranging from distributing food and medical aid to the waiting for refugees in front of the national registration authority, to helping out at refugee shelters, teaching German, and long-term integration assistance.

Major characteristics of German voluntary refugee-helpers can largely be generalised as follows: (1) the dominance of female volunteers; (2) relatively high education standard; (3) favourable financial stability and living conditions; (4) a strong involvement of (relatively old) employed people and retirees; and (5) 20 to 25 hours of volunteer work per month. These facts, which also apply for those who have been active in the district of Erding, in turn indicate that the volunteerism revealed in the German refugee crisis appears to be strongly triggered by the intrinsic motivations of the individual volunteers, characterized by a prosocial disposition toward helping these refugees (see also Finkelstein et al. 2005).

Secondly, backed by the conventional crowding-out theory of voluntary provision of public goods and a warm-glow philanthropist consumption model, this study attempts to measure the economic value (the opportunity cost) of volunteering through converting the value of volunteering time and work into monetary terms. Based on the survey carried out among those voluntary refugee-helpers in the district of Erding some cautious but novel estimations are made in this context, applying different assumptions related to the types of comparable market wages (e.g. use of German minimum wage for the opportunity-cost calculation of volunteers' working hour; substitution of those voluntary works by the lower payment local group of local civil servants, additionally considering indirect labour cost, etc.). In spite of the methodological weaknesses concerning the representativeness of the survey in terms of capturing the volunteers' true income structure and their productivity differences, this study not only reveals the monetary significance of volunteers' hidden contribution to overcoming the German refugee crisis, but also suggests the relatively huge scope of increased local expenditure burden, if those voluntary refugee-related activities were completely substituted by those of full-time civil servants in the district government of Erding.

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