



Modelling informally collected quantities of bulky waste and reusable items in Austria



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ABSTRACT

Disparities in earnings between Western and Eastern European countries are the reason for a well-established informal sector actively involved in collection and transboundary shipment activities from Austria to Hungary. The preferred objects are reusable items and wastes within the categories bulky waste, WEEE and metals, intended to be sold on flea markets. Despite leading to a loss of recyclable resources for Austrian waste management, these informal activities may contribute to the extension of the lifetime of certain goods when they are reused in Hungary; nevertheless they are discussed rather controversially. The aim of this paper is to provide objective data on the quantities informally collected and transhipped. The unique activities of informal collectors required the development and implementation of a new set of methodologies. The concept of triangulation was used to verify results obtained by field visits, interviews and a traffic counting campaign. Both approaches lead to an estimation of approx. 100,000 t per year of reusable items informally collected in Austria. This means that in addition to the approx. 72 kg/cap/yr formally collected bulky waste, bulky waste wood, household scrap (excluding packaging) and WEEE, up to a further 12 kg/cap/yr might, in the case that informal collection is abandoned, end up as waste or in the second-hand sector.

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1. Introduction

According to a resolution concerning decent work and the informal economy the General Conference of the International Labour Organisation (ILO) describes that “informal economy” refers to all economic activities by workers and economic units that are – in law or in practice – not covered or insufficiently covered by formal arrangements. Their activities are not included in the law, which means that they are operating outside the formal reach of the law; or they are not covered in practice, which means that – although they are operating within the formal reach of the law, the law is not applied or not enforced; or the law discourages compliance because it is inappropriate, burdensome, or imposes excessive costs (ILO, 2002). An Organisation for Economic Co-operation and Development (OECD) study shows that the financial crisis has adversely affected the employment situation of many people and, in low-income countries with no unemployment insurance, they are forced to take informal jobs with low pay, no protection and high risk exposure. The study found that 1.8 billion people, or more than half of the global labour force, were working

without a formal labour contract and social security (Jütting and de Laiglesia, 2009).

1.1. Informal waste recycling sector in low-income countries

Ezeah et al. (2013) state that individuals and family groups within the informal waste sector do not usually possess trading licences, do not pay taxes, and are not included in the government insurance, social welfare and funding schemes. Especially health insurance or at least regular access to medical services are important, as usually informal workers have low awareness on occupational health and safety (Gutberlet and Baeder, 2008; Ezeah et al., 2009). Scheinberg et al. (2010) define the informal solid waste recycling sector (IS) as referring “to individuals or enterprises who are involved in private sector recycling and waste management activities which are not sponsored, financed, recognised, supported, organised or acknowledged by the formal solid waste authorities, or which operate in violation of or in competition with formal authorities.” Wilson et al. (2006) and Kinobe et al. (2015) segregate the main categories of informal waste recycling according to where and how the material recovery takes place i.e. doorstep waste pickers, itinerant buyers who move around the streets to purchase clean reusable and recyclable materials, street waste picking and waste picking from dumps/landfills.

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People earn their livelihoods by collecting, processing, recycling and selling waste at different levels along the value chain. Beside the individual pickers at the bottom of the informal “recycling value chain” other activities are involved in this hierarchy, such as sorting, processing (e.g. cleaning, crushing, bailing, etc.). Usually the value of the recyclables increase, the higher they are traded within this hierarchy. The recycling trade hierarchy consists of individual waste pickers (or family type units) at the lowermost levels, ascending to recycling small and medium-sized enterprises (SMEs), craftsmen and middlemen, brokers, wholesalers and manufacturing industries as the final destination of informally collected recyclables. Informal, that is “non-authorized” activities may contribute significantly in extending waste management services, e.g. collection in poorer areas, the provision of cheap secondary raw materials for local economies, but also in improving hygiene, extending lifetime of dumps/landfills, reducing costs for the formal system and reducing greenhouse gas emissions (Medina, 2008; Nzeadibe, 2009; UN-Habitat, 2010).

Informal activities in waste management were formerly seen as a social problem without considering the economic activities carried out. International donors and institutions reacted with projects that were thus welfare based, focusing mainly on improvement of the working conditions and disregarding the enabling environment, meaning “the political and social forces that influence their position” (Scheinberg et al., 2006). The discourse on the informal sector has been largely framed within poverty reduction and livelihoods perspectives (Nzeadibe and Anyadike, 2012; Adama, 2011). In addition, more development oriented approaches gave rise to “social and economic interventions such as education, credit and income generation to enable pickers to exit to other occupations”, ignoring significant issues related to the importance of waste picking as a means of generating income. Other approaches were more rights-based, including “supporting pickers to form organisations and lobby for rights and social status, but still without acknowledging the economic importance of picking” (Scheinberg et al., 2006). Early approaches were driven mainly from a social point of view, but are more changing towards recognising the informal waste sector and the involved individuals as an integral part of waste management systems (Velis et al., 2012; Ezeah et al., 2013).

The informal waste recycling sector also increasingly attracted interest for research expressed by the number of publications listed in the scientific search engine Scopus using the terms “informal” and “waste management”. In the mid of the 2000s the number of scientific papers on the topic increased from around five papers per year to more than twenty in the years 2012–2014. Ezeah et al. (2013) state that more research is needed on estimating the economic importance of informal activities on a local, national and regional scale and if successful, this would highlight the benefits the sector brings and, through this recognition, would drive greater integration within the formal municipal collection system. Linzner and Lange (2013) perform an extensive literature research with the goal to gather a large amount of research in this area, and to compile research outcomes, mainly from the last decade, with the aim of providing key performance indicators for waste management planning or monitoring. Accordingly, the results presented stem from more than 100 international published journal papers, reports and case studies, rather than original research based on primary data. Based on 42 datasets the authors present calculated percentages of informal waste workers of the urban population in different regions of the world. The average value of informal waste workers accounts for approximately 0.6% of the urban population. Other literature sources report figures between 0.5% (UN-Habitat, 2010) and 2% (Bartone, 1988; Medina, 2000). This is equivalent to approx. 12.5–56 million people worldwide working in the informal sector in waste management.

The amounts of recyclables that can be collected informally by time unit are dependent on several factors such as the location of activity and accessibility of materials (e.g. dump picking as opposed to itinerant waste buyers); the means of transport (by foot, pushcarts, animal-driven or motorised vehicles); the physical condition, age and sex of collectors; the type of materials (bulk densities) and the geographical conditions (length of trips to be made to collect materials, flat or hilly areas). Data presented in literature show the daily amounts collected by informal workers with respect to the means of transport in use. The data have to be considered as approximate values as it is not described what type of materials were collected. It is not clear from the literature whether the figures display mixed recyclables or certain types of recyclables. It is described that collectors on foot may collect a minimum of 9–17 kg/d (study for Delhi, whereas children collect 9 kg) or maximum 40 kg (Chintan, 2003). Cyclists can collect 14–60 kg/d, rickshaw and pushcart use leads to increased collection rates from 40 to 200 kg/d, and by using pick-up trucks the collection rate can increase up to 2–3 t/d (Agarwal et al., 2005; Ezeah et al., 2013). A compilation of different sources asserting daily amounts of material collected is provided in Linzner and Lange (2013), ranging from 15 to 82 kg/d and with an average value of 49 kg/d. Kinobe et al. (2015) illustrate the recycling potential at a landfill in Kampala (Uganda).

The ratio of waste picker income related to minimum wage is displayed in Chintan (2005), Medina (2007), Crivellari et al. (2008), Nzeadibe (2009) and Scheinberg et al. (2010) typically ranging from 0.7 to 5. Ruiz Rios et al. (2009) calculate the profit margins for each step in the informal recycling value chain in Peru. The price for 1 kg of material increases along the value chain. Certain paper and cardboard products increase by a factor of 1.3–3.0, polyethylene terephthalate (PET) plastics by 2.0 and for some metals by a factor of between 1.4 and 2.5. Nzeadibe and Ajaero (2011) refer to waste pickers in Nigeria earning approx. three times the minimum wage, whereas scrap dealers in the next level of the informal recycling value chain realise monthly incomes that are fifteen times higher than the minimum wage. Informal waste reclaiming activities can be considered as important revenue factor in low-income countries; the incomes may even reach a multiple of the minimum wage.

1.2. Informal activities in the European context

The existence of informal waste management activities in Europe has generally been neglected to date, but such activities are greater than an issue that affects merely the homeless. In Central and (South)-Eastern European countries (CEEC), informal practices are visible in the streets and on landfills. Informal collectors pick potentially recyclable wastes out of the municipal waste stream e.g. at household level or out of municipal bins, with the goal of earning an (additional) income by selling them.

Scheinberg and Nestic (2014) present the results of a consultation process on the informal waste recycling sector in Europe. The authors point out that most European waste pickers are men, between 20 and 60 years old and that waste picking and recycling is an individual entrepreneurial activity, not (primarily) a family activity. It is also expressed that informal work is carried out seasonally or part time. The authors also estimate the numbers of informal recyclers in Europe of more than 60,000 second-hand and reuse operators in Italy; 20,000 in Greece; approx. 5,000 in the Western Hungarian city of Devecser, and thousands of informal recyclers documented in virtually all Balkan countries. Hence the estimate of one million persons supported by informal recycling within or at the gates of the European Union does not seem far-fetched. Moreover the authors stress that most waste pickers in the European Union belong to one, or in some cases to two

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