

Informal entrepreneurship and the circular economy in Hungary: entrepreneurial practices of informal Roma municipal waste collectors

 Tim Gittins^{a*},  László Letenyei^a

^aCorvinus University of Budapest, Hungary

Abstract

Roma communities in the CEE (Central and Eastern Europe) region predominantly work in the informal economy. By focusing on entrepreneurial activities of Roma individuals working in informal municipal waste collection, an induction driven ethnographically oriented research approach is applied whereby findings are thematically derived to create a conceptual model for integration of Roma entrepreneurial activities and formal working practices. In a wider contextual background of environmental sustainability embodied in the 'circular economy', outcomes primarily indicate that Roma informal entrepreneurial activities are driven by social capital formation and are serendipitously beneficial to society. Moreover, paradoxes arise in conflicting purposes of official and informal waste collection practices. The prime theoretical implication is that efforts to formalise Roma entrepreneurial activities are untenable in relation to their overall socio-economic benefits. In practical terms, the study provides indicators for integration of Roma informal entrepreneurial activities into development of circular economy-oriented policy.

Keywords: informal entrepreneurship, circular economy, social capital, municipal waste collection

Introduction

The informal economy is estimated to account for two-thirds of all enterprises globally (Williams & Oz-Yalaman, 2021), in that they are not registered with authorities for taxation and legal purposes. With informal entrepreneurship categorised as opportunity or necessity oriented (Audretsch et al., 2022), Roma communities in the CEE region are commonly characterised as necessity focused in terms of engaging in employment to guarantee immediate survival needs. Opportunity orientation by contrast suggests a tendency for informal entrepreneurs to focus on income generation beyond survival status.

*✉ Tim Gittins, Professor of Practice, Institute of Entrepreneurship and Innovation, Corvinus University of Budapest, Hungary; email: tim.gittins@uni-corvinus.hu.

Moreover, the process of economic transition in the CEE region since the early 1990s is commonly associated with the presence of a prominent informal economy. This is reflected in a strong tendency for consumers to purchase informally acquired goods as outlined in a Romanian based study by Horodnic et al. (2022). Substantial income inequality in the region during transition is also identified by Rose and Viju (2014). In this study, Roma informal entrepreneurial actors engage in municipal waste collection within a context of sustainability associated with the circular economy (Centobelli et al., 2020). Circular economy theory has gained acceptance given heightened public awareness of environmental issues. For example, the European Union (EU) initiated a ‘zero waste’ policy in 2014 (Leipold, 2021).

Relatedly, informal Roma waste collectors may tacitly conform to principles of social entrepreneurship by creating social value (Lamy, 2019), through municipal waste collection in terms of disposing of bulky residential waste material. Moreover, output of social entrepreneurship entails marketable value: thus informal waste collection infers the existence of specific social capital networks (Lumpkin et al., 2018) to facilitate transaction and disposal of collected material. Furthermore, social construction theory (Granovetter, 1985) is influential in terms of outlining social capital ties to generate overall communal advantage as outlined in African settings (Berrou & Gondard-Delcroix, 2018). Roma communities are also noted for possessing specific cultural identities (Messing, 2014) thereby displaying broadly similar ethnic social capital formation characteristics identified elsewhere in the world.

Social entrepreneurship theory has almost entirely been conceptualised in formal entrepreneurial contexts. Research gaps thus arise in terms of examination of (1) the impact of ethnically derived social capital upon informal entrepreneurship and (2) the relevance of circular economy principles to Roma entrepreneurial practices. This paper therefore has the aim of *conducting ethnographic examination of informal entrepreneurial practices of Roma informal waste collectors*.

Research was accordingly conducted with the following research objectives:

- Examination of social capital utilisation through Roma informal entrepreneurial activities;
- Examination of Roma entrepreneurial practices in relation to informal municipal waste collection.

This article proceeds by the theoretical framework initially considering informal entrepreneurship, social capital and circular economy theory and policy application. This acts as a prelude to development of an ecosystem-based model to guide the ethnographic research approach. The subsequent methodology section outlines difficulties associated with researching Roma communities. This is followed by a summary of research findings which are thematised to present prominent implications. In the following discussion section paradoxes in terms of the relationship between formal and informal waste collection are presented as a prelude to development of a model embodying integration of informal Roma activities with municipal waste collection policy. The research objectives are finally addressed to

derive propositions for further theoretical and policy related development followed by consideration of limitations.

1.Theoretical framework

In this section a paradigmatic approach is adopted on the basis of the preceding aim and research objectives whereby intersections between separate theoretical constructs are examined. This also has the purpose of enabling contextual construction of the ensuing ecosystem model to guide the research approach deployed.

1.1. Informal entrepreneurship and social capital

Entrepreneurship as a means of co-ordinating tangible and intangible resources to provide value for those engaged in it is invariably perceived as being driven by specific individuals (Cope, 2005; Kreiser et al., 2013). An enterprise by extension is formed of individuals who may not all share common entrepreneurial zeal but who are bound together in a purpose of producing value for their common benefit. Given the implicit association of entrepreneurship with small organisations, social capital formation is thus integral for development and maintenance of intimate links between individuals working within them and for developing external contacts.

Social capital, seminally defined as the creation of business value between individuals, (Naphathiet & Ghoshal, 1998) is integral for development of intra-organisational linkages and to external business entities. This aspect has been studied extensively in formal entrepreneurial contexts (De Carolis & Saporito, 2006) whereby explicit legal structures form governance norms. Informal entrepreneurship typically embodies implicit governance norms (Williams & Bezeredi, 2018) and entails reliance upon cognitively based informal institutions compared with formal counterparts (Laing et al., 2021).

In the CEE region, informal entrepreneurship is associated with ‘institutional embeddedness’ (Welter & Smallbone, 2011) whereby institutional norms formed in pre-market oriented centrally-planned economies persist. Given an implicit extent of necessity driven entrepreneurship associated with transition to free-market status in the CEE region (Williams & Bezeredi, 2018), this is assumed to predominantly apply in informal contexts. Relatedly, taxation avoidance is commonly cited as motivation for informal income generation (Williams & Bezeredi, 2018) thereby assuming a substitutional function for formal employment. Moreover, Roma in the CEE region are typically perceived as a homogenous cultural entity when they are actually formed of distinct tribal groups (Messing, 2014; Pulay, 2016). Roma are also noted for utilising their own intrinsic social capital networks through for example engaging in informal money lending practices (Durst, 2022). This infers intrinsic usage of social capital networks by different Roma communities which may preclude access by other Roma and non-Roma entities. Nonetheless, regardless of tribal affiliation,

engagement in informal entrepreneurship and employment may serve to enhance social value for the benefit of society as a whole.

1.2. Informal entrepreneurship and social value

Social value denotes the addressing of social problems as compared to market value measured in monetary terms (Lamy, 2019). Relatedly, raised awareness of environmental issues has resulted in strengthened awareness of social entrepreneurship, which has however mostly been considered in formal contexts given empirical difficulties in estimating the extent of informal entrepreneurship (Autio & Fu, 2015). Moreover, perceptions of the informal economy as synonymous with illegal activity may also bolster perceptions that it does not create social value. Social entrepreneurship may also be embedded in entrepreneurial ecosystems (Etzkowitz, 2003) whereby interaction between institutional stakeholders and new and existing small businesses entails the development and exchange of social and market value. This aspect adds credence to the view that agency theory confers prominent roles on social entrepreneurs in terms of addressing social issues (Grimes et al., 2013).

Assuming informal entrepreneurship is primarily borne of necessity orientation, market value entails precedence over social value given intrinsic financial motives of entrepreneurs. In the context of this study, international markets for electronic waste products (Garg, 2021), would suggest the existence of market driven incentivisation for informal entrepreneurship to assume a tendency towards opportunity orientation. Furthermore, Roma individuals act as suppliers and intermediaries in international waste product markets (Ramusch et al., 2015; Vaccari & Perteghella, 2016). Waste diminishing informal entrepreneurial activities might thus be regarded as creating overall social value by utilising bricolage principles through the use of frugal innovation subject to resource limitations within informal ecosystems (Igwe et al., 2020). Moreover, social value is also transmitted through social capital networks or ‘communities of identity’ (Lumpkin et al., 2018) and as such is resonant to Roma communities (Cetobari, 2016).

1.3. The circular economy and informal entrepreneurship

The circular economy assumes use of sustainable as opposed to traditional linear models of economic production where waste is considered as a by-product (Centobelli et al., 2020). Thus, circular economy models focus on resource recycling to minimise such wastage. In under-developed countries, characterised by insufficient infrastructural development, municipal waste collection is largely performed by informal entrepreneurial actors (Scheinberg et al., 2016) alongside official providers (Velis, 2018), thereby tacitly adhering to circular economy principles by controlling and minimising the extent of municipal waste. This is

encapsulated in an ‘intera’ model illustrating the interaction of official waste collection services with informal waste collectors in a social interface, whereby collected material is processed and recycled to mutual social benefit (Velis, 2018).

EU circular economy policy is largely driven by greater public awareness of environmental issues in that actions tend to be ‘patched on’ to long-established environmental policy measures (Fitch-Roy et al., 2020). Thus, zero waste policy objectives by implication would need to incorporate existence of informal waste collection practices on a somewhat more proactive basis. Informal entrepreneurial activities may also be regarded as creating market value for informal enterprises by use of bricolage to maximise use of available resources through improvisation (Baker et al., 2003). Bricolage may occur for example through product creation from waste material (Guibrunet, 2021) to infer implicit adherence to circular economy principles, yet the extent of participation of informal enterprises in municipal waste management is still relatively unacknowledged in policy development terms (Scheinberg et al., 2016).

Bricolage related informal entrepreneurship studies also tend to implicitly emphasise inter-communal social capital formation. Igwe et al., (2020), Wierenga (2020) and Guibrunet (2021) all emphasise the tacit utilisation of communal social capital networks to drive innovation capabilities. Such frugal innovation (i.e. Igwe et al., 2020; Wierenga, 2020) is also formed within resource constraint parameters not readily applicable to formal entrepreneurial contexts. Thus bricolage tendencies are assumed to be borne of social capital creation in given localities, subject to the nature of prevailing cultural and cognitive institutions.

In relation to the circular economy, informal entrepreneurship may be as integral to the application of bricolage as it is to formally bound social entrepreneurship. The latter concept is in turn assumed not to be subject to resource constraints faced by informal entrepreneurs. Moreover, social entrepreneurship is associated with vision and mission not shared by informal counterparts. Thus, social value arising from informal entrepreneurial activity in the circular economy may be viewed as serendipitous. Furthermore, informal waste collection practices may have harmful environmental, social and health related effects as outlined by Nithya et al., (2020). Relatedly, Roma communities dispose of unmarketable materials by for example burning plastic for domestic heating (Pulay, 2016; Hall & Zeman, 2018).

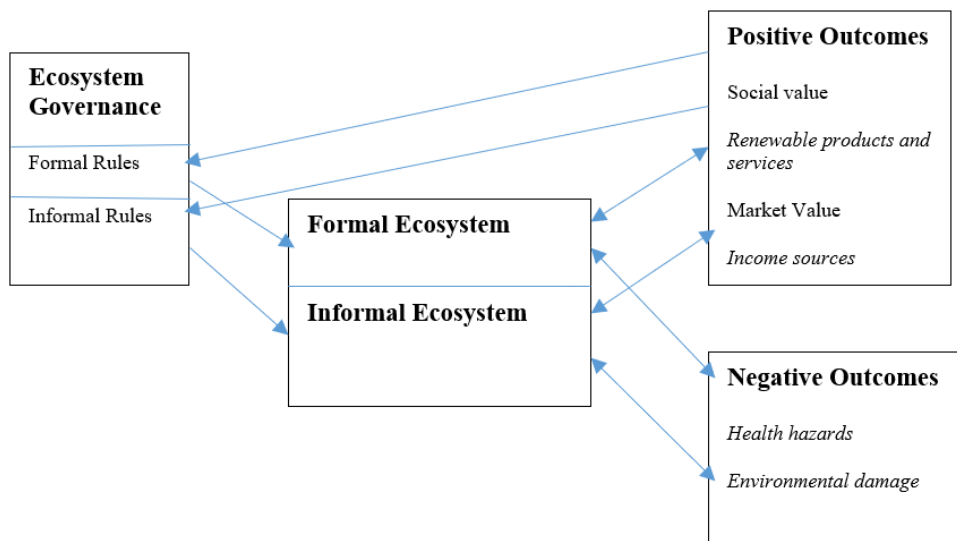
Such practice is representative of ‘negative externalities’ whereby economic activity has an overall negative social impact (Masoudi & Bowie, 2021). In this regard, Matos and Hall (2020) outline ‘destructive entrepreneurship’ borne of weak formal institutions and resource scarcity resulting in environmental damage to infer parallels with informal waste collection in that entrepreneurs may dispose of items deemed to be of minimal marketable value with subsequent socially undesirable effects. On this basis of this and that of the preceding narrative, the following section is used to develop a model encapsulating informal entrepreneurship in relation to the circular economy.

1.4. Circular economy ecosystem model

The model is grounded in entrepreneurial ecosystem theory (Etzkowitz, 2003), whereby institutional actors interact to sustain entrepreneurship. Entrepreneurial ecosystems as such are analogous with ‘natural ecosystems’ subject to replenishment of resources nurture in order to sustain ecological balance (Moore, 1993). Economic competition similarly acts as the prime determinant force in an entrepreneurial ecosystem thus enabling the functioning of business through the interaction of institutional stakeholders. Accordingly, the nurturing of ecosystems takes place through resource provision by institutions and social capital transmission (Roundy & Bayer, 2019). Regardless of tendencies towards opportunity or necessity entrepreneurial orientation, this phenomenon is also assumed to apply in informal contexts.

Although ecosystem theory is nearly entirely applied in formal contexts, it is further assumed for this study that ecosystem governance is framed in terms of both formal and informal institutions (Igwe et al., 2020) from which rules are interdependently derived. The same principle is assumed to apply to positive and negative outcomes of entrepreneurial activity.

Figure 1. Circular economy ecosystem model



Source: authors' representation

Governance rules may also be derived from institutional norms as outlined by Gaaliche (2013) in a Tunisian based study, whereby it was found both forms contributed to the regulation of the local economy. On this basis, formal rules are

assumed to be explicitly outlined in the form of defined legal structures, whereas informal rules are embodied in cognitive institutions such as organisational hierarchy. Rules are also assumed to be interdependently derived within the ecosystem. The same principle is applied to positive and negative outcomes of ecosystem activity, thereby indicating the presence of both planned and unintentional circularity of ecosystem operations.

However, only positive outcomes are assumed to influence the development of governance norms. Negative outcomes may infer destructive entrepreneurship (Matos & Hall, 2020) thereby precluding such influence. For example, the burning of noxious material is assumed not to influence ecosystem governance given such an activity has a clear detrimental socio-economic effect.

Duality is emphasised though separate transmission of formal and informal rules to formal and informal ecosystem segments. Informal rules are assumed to derive from cultural norms specific to respective ethnic groups embodied in traditional nomadic lifestyles associated with Roma (Foley and Cooney, 2017). Innovation capabilities are also assumed to be present within the entire ecosystem, albeit subject to greater levels of tangible resource availability in the formal ecosystem segment. Bricolage utilisation enabled by the presence of social capital networks is representative of frugal innovation applicable to the informal ecosystem segment. In essence the model provides a basis for addressing the extent to which informal entrepreneurship may facilitate the application of circular economy principles outlined by Centobelli et al. (2020).

2. Methodology

2.1. Rationale

Challenges associated with researching Roma communities have been extensively documented. Principally, Messing (2014) argues that researchers adopt negative perceptions of Roma, while imprecise estimates of Roma population sizes and perceived wariness of Roma of attracting official attention mitigate against the use of quantitative studies (Cebotari, 2016). Research involving Roma individuals as subjects thus tends to assume a qualitative bias. While the presence of Roma in the CEE informal economy at macro level has received sufficient attention in social sciences, this has generally not been applied at micro level. Moreover, Roma participation in addressing environmental issues is somewhat ignored. With debate on informal entrepreneurship widely considered in terms of necessity and opportunity orientation, Adu-Gyamfi et al., (2022) formed a contextual approach compatible with circular economy principles which is applied to examine Roma informal entrepreneurial activities in this study.

Generally, the participation of Roma in research projects is hindered by the presence of stereotype reinforced communication barriers (Málovics et al., 2019).

While macro-scale research projects have been initiated, research outcomes may be more applicable in policy terms if Roma are actively involved in project implementation (Munté-Pascual et al., 2022). Macro-based projects tend to entail participation of Roma in formal leadership positions, thus contextually rich narrative based insights may not always be forthcoming.

Hence an ethnographic focus has been adopted for data collection in this study whereby researchers interact with ‘frontline’ research subjects to facilitate ‘intensive excursions’ into their regular activities (O’Leary, 2005). This implicitly assumes a long-term research process, but with this study subject to resource constraints such an approach was not practicable. Thus, a short-term ethnographic approach (Tileagă et al., 2021) was applied to allow for short term encounters to sufficiently generate contextually rich narrative and to avoid excessive impingement upon regular activities of research subjects.

2.2. Implementation – unstructured discussions

With reference to the aim and objectives of this study, the unit of examination is assumed to be informal waste collection activities focusing on informal waste collectors acting as ‘frontline’ workers. Fortunately, in Hungary there is a vehicle as a means of research implementation in the form of *lomtalanítás*¹, or official annual residential waste collection of bulky refuse items deemed too large for regular collections. Residents are notified of the collection date and advised to deposit material no longer than 12 hours before collection time and not to deposit items deemed to be environmentally harmful². In the intervening period, informal Roma waste collectors invariably emerge to sort through waste. Hammersley and Atkinson (1995) developed principles for ethnographic research, one of which is observation of research subjects to discern patterns of activity. Thus, research subjects were located at *lomtalanítás* sites, whereby items were sorted systematically with those deemed to be of value transported. With regard to the legal status of waste, once it is deposited in a public area, it becomes property of the local municipality³. The research process was thus initiated by observation of collection patterns as a prelude to unstructured discussions with informal collectors. The following research questions were devised for this purpose:

- From where do you gather scrap material?
- How do you organise its collection?
- Who decides what sort of material to collect?

¹ Translated from Hungarian as ‘waste clearance’.

² List of collection times: FKF - *Fővárosi Közterület-fenntartó (Metropolitan Public Area Maintenance Company)*, hereafter referred to as ‘MPAMC’ <https://www.fkf.hu/tajekoztato-2022-evi-lomtalanitasrol>.

³ Interview with MPAMC official.

- What problems do you usually face in collecting material?
- How do you sort different types of material?
- How do you decide if material is valuable or not?
- What do you do with material which is not valuable?
- Who usually buys scrap material from you?
- What problems do you usually face in selling material?
- Do you make new things from the material you collect and then sell them?

Although not explicitly used in unstructured discussions, these questions were subconsciously maintained to allow for implementation of a participatory ethnographic approach whereby researchers posed as amateur collectors to initiate unstructured conversations with Roma collectors based on a ‘community walkthrough’ approach applied to Roma communities by Hall and Zeman (2018). The intention was to establish trust with Roma collectors by incentivisation through purchase of *lomtalanítás* items.

Condon et al., (2019) deployed a similar participatory approach in a UK based research project by offering Roma participants supermarket vouchers. It is acknowledged that an ethical issue arises in the case of this study in terms of initially unrevealed research purposes but incentivisation was justified through yielding contextually rich narrative. In practical terms, it was not possible to obtain prior consent for discourse with informal waste collectors, but during the course of unstructured discussions we eventually revealed our identities and purpose in all cases. There were no objections to narrative being used thereby ensuring a modicum of implicit consent.

We would emphasise that if we had immediately revealed our intentions it is likely trust would not have been developed and discussions would have been terminated. Given that we did not record conversations in order to engender trust, it was not possible to ascertain identities of discussants thereby ensuring anonymity. Moreover, given the micro-focused nature of the study on ‘frontline’ informal waste collectors, it was felt imperative to initiate ‘real time’ discussions with informal collectors in the course of their work.

While acknowledging there is an ethical issue in this study in terms of not seeking prior consent for discussions, our approach was hampered by the nature of difficulties in conducting research with Roma individuals as outlined by Messing (2014) and Cebotari (2016). While various socially oriented research projects have been conducted with Roma communities at macro level (Munté-Pascual et al., 2022), such an approach was not appropriate for our study given that we intended to directly elicit insights from ‘frontline’ workers. In particular, we were cognisant of a tendency towards suspicion of non-Roma researchers which largely determined our approach. Nonetheless we implicitly ensured ethical principles of maintaining respect for discussants and offering them opportunities to refuse the use of narrative. While we did not explicitly devise ethical guidelines we ensured ethical principles

were maintained in our discussions. Furthermore, we did not request names of discussants which also served to ensure confidentiality.

In consistency with grounded research principles of generalisability, (Strauss & Corbin, 1990) comments were memorised with no notes taken and were subsequently transcribed and the narrative compared between both authors within 24 hours to account for freshness of memory. This process acted as the prime means of verification of data for accuracy and reliability. Furthermore, we did not use mobile technology to record discussions due to an implicit need to uphold ethical principles and also not to inhibit openness of responses.

The same unstructured discussion approach was also applied to one scrapyard supplier, two property renovation workers and two flea market vendors as stated in Table 1, with discussants similarly informed of our intentions. Confidentiality was assured and no discussants refused the use of memorised narrative. Variations of the previously stated research questions used for informal collectors were applied with an amendment regarding the nature of activities. For example, discussions with flea market vendors focused on the procurement of items and sale destinations.

2.3. Implementation – semi-structured interviews

The unstructured approach was complemented by semi-structured interviews with local government officials. Interviews were recorded and transcribed in accordance with grounded research principles (Strauss & Corbin, 1990) to facilitate the extraction of first-hand narrative from previously unresearched areas. This allowed researchers to gain insights into governance and the relational status of various actors. In this case, notes were taken with permission of interview subjects and consent was granted for use of narrative subject to maintenance of confidentiality. Transcripts were compared between researchers and inductive conclusions agreed upon.

The first interviews in April and June 2022 was designed to elicit official insights into rationale for informal entrepreneurial behaviour. A series of open questions was devised as follows:

- For how long has *lomtalanítás* been practiced in Budapest/Hungary?
- What benefit does it give for residents depositing unwanted items?
- How does it benefit Roma rubbish collectors?
- Which items are typically taken by Roma?
- How do Roma typically organise collection activities?
- Where do you think Roma sell collected items?
- What do you know of intermediaries between Roma collectors and ‘end users’?
- How have Roma collection activities been impacted by Covid-19?
- Do you know of similar activities to *lomtalanítás* in neighbouring countries in this region?

- What would be the overall impact on Roma income levels and waste disposal activities if *lomtalanítás* was ended?

A second interview was conducted with the same officials later in June 2022 in order to clarify some previous responses by use of the following supplementary questions:

- What scope is there for giving Roma incentives to handle and monitor quantities of hazardous waste?
- How can residents be encouraged not to deposit hazardous material in *lomtalanítás*?

2.4. Implementation – thematisation

In accordance with open coding practices, qualitative narrative should ideally be related to theoretical constructs (Strauss & Corbin, 1990). Hence conclusions derived from narrative as previously outlined were thematised to form general areas of alignment with the research objectives for this study. Open coding involved textual analysis of transcripts memorised from unstructured discussions and recorded transcripts of semi-structured interviews. The intention was to inductively generate codes from findings derived from narrative based data in order to identify common themes in relation to existing theory. Given the specific subject matter has not hitherto been extensively researched, open coding was also deemed appropriate to relate findings to established constructs outlined in the theoretical framework.

3. Data collection

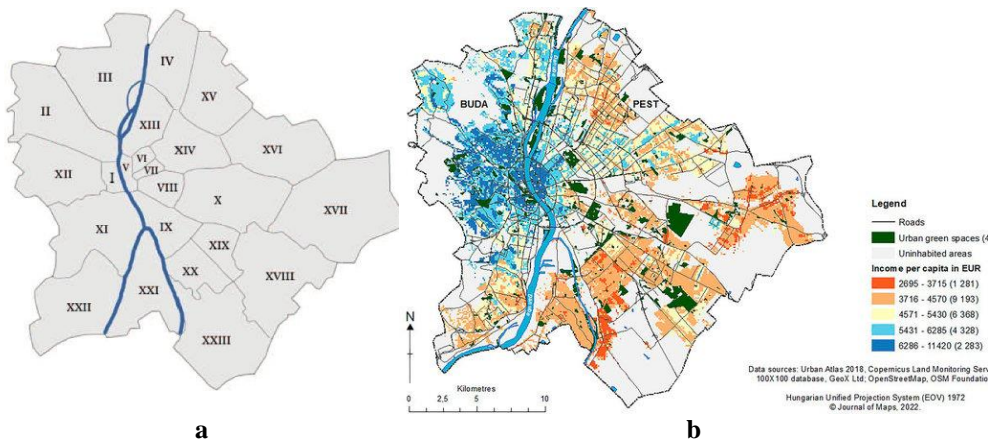
This was conducted throughout 2022 with the entire process summarised in Table 1.

Access to informal collectors for unstructured discussions was facilitated through *lomtalanítás* conducted in different districts of Budapest at different time points. Collection periods are publicised online beforehand enabling residents to dispose bulky household items on kerbsides. Budapest is a relatively medium-sized European capital city with a population of 1.7 million (Farkas et al., 2022). We focused on more affluent districts by assuming quality of disposed material is more attractive to informal collectors. As such we attended *lomtalanítás* collections in districts III, XII and XIII as indicated in the following maps, with one visit to district XIX considered as a less affluent district.

Table 1. Data collection process

Research subjects	Method	Number of Interviews/Discussions	Date	Location
Informal collectors	Unstructured discussions	5 (district XIII); 2 (district XIX), 2 (district XII) 2 (district III) (11 in total)	March – June 2022	Budapest, districts XIII, XIX, XII, III
Property renovation workers	Unstructured discussion	2	February 2022	Vác
Scrapyard supplier	Unstructured discussion	1	February 2022	Vác
Flea market vendors	Unstructured discussions	2 (visits to separate markets)	May 2022	Budapest
Waste authority officials	Semi-structured interviews	3	April, June 2022 (x2)	Budapest

Source: authors' representation

Figure 2. Budapest districts (1) and income levels (2)

Sources: (a) Keresztély and Scott (2012); (b) Farkas et al. (2022)

Lomtalanítás is usually conducted over a one-week period with collection made in different administrative areas on separate days. We made visits to informal collection sites in evening hours after disposal was permitted, where large piles of refuse were sorted and guarded by informal collectors prior to transportation. By using the rationale outlined by Hall and Zeman (2018) this enabled us to approach them by posing as amateur collectors seeking items of artistic value and in some

cases purchasing items thereby developing trust and engendering discussion. The same unstructured approach was applied to legally registered flea market and scrap metal vendors.

4. Findings

This section proceeds by firstly summarising common points emerging from unstructured discussions and then from semi-structured interviews.

4.1. Unstructured discussions with informal collectors

From observation preceding discussions, a pattern emerged whereby valuable items were collected and those deemed not to be of value left as residual material. Moreover, it also became clear that items not permitted for deposit such as refrigerators, TV sets and computer monitors were openly deposited by residents. Types of waste items and their value status are outlined in the following table:

Table 2. Waste item types

Item Type	Material	Deposit status	Market value	Destination
Domestic furniture	Wood	Permitted	Low	Mostly abandoned with burnable material used for heating fuel
TVs, computer appliances, DVD players etc.	Steel, plastic, copper wiring	Not Permitted	High	Dismantled on site with wiring and metals taken to scrap dealers.
Refrigerators, washing machines, etc.	Steel, plastic, copper wiring	Not Permitted	Dependant on quality	Scrap metal dealers
Carpets, textiles, clothing etc.	Textile	Permitted	Low	Mostly abandoned.
Books, DVDs, CDs Personal keepsakes.	Various	Permitted	Low	Flea markets; amateur collectors.

Source: authors' representation

Observation also revealed various patterns indicative of entrepreneurial behaviour. Principally, waste sites were occupied by groups who from subsequent discussion emerged to be mostly families. Leadership status was also apparent with prominent members directing sorting, dismantling and transportation. It later emerged that several collectors had travelled substantial distances, typically for over 50 kilometres to *lomtalanítás* sites and often slept in their vehicles. Moreover,

observation indicated a relatively constant process of reduction of waste piles through transportation and accumulation of new deposits co-ordinated by mobile phone use. With reference to the memorisation and transcription approach previously outlined, common findings were derived and summarised in the following table:

Table 3. Findings of unstructured discussions with informal collectors

District	Date	Main Findings
XIII	March 2022	<ul style="list-style-type: none"> - Collection units predominantly formed of families with one member in a prominent leadership role. - Younger members mostly perform heavy lifting work. Older members tend to guard waste piles. - Leaders were all exclusively male and older with substantive experience of informal waste collection. - A territorial aspect was identified in discussants admitting a need to occupy sites in advance of permitted deposit times and transporting collected material before rival groups arrive. - Items deemed to be of sufficiently good and operable quality taken to flea markets. - Non-operable refrigerators, cookers, washing machines etc with metallic content transported to <i>vasudvars</i>⁴. - Information on <i>lomtalanítás</i> times gathered from mobile internet use. - More valuable items obtained in more affluent districts. - Several collectors had travelled from outside Budapest. - Dismantling of TV and computer parts performed on site.
XIX	April 2022	<ul style="list-style-type: none"> - Home renovation clearance material deemed to be mostly of minimal value. - Several waste piles occupied by the same groups and constantly replenished by residents. - Mobile phone communication prominently used to co-ordinate activities. - Valuable items taken to large flea market 100 km from Budapest. - <i>Lomtalanítás</i> provides regular income flows.
XII	May 2022	<ul style="list-style-type: none"> - Most valuable metals are iron, copper and aluminium. - This district is relatively affluent thus attracting rival collector families. - One discussant owned and supervised 20 clearance vehicles with material removed and vehicles returning on a continual basis. - Residents find it more convenient to deposit ‘non-permitted’ items in <i>lomtalanítás</i> sites. - Flammable wooden material collected for heating use.
III	June 2022	<ul style="list-style-type: none"> - Various materials of value taken home and then sold in nearby <i>vasudvar</i> locations.

⁴ Relatively small scrapyards.

- One group used a separate vehicle (estate car) used for transporting clothing to be sold in collector's home village.
- *Lomtalanítás* waste quantities have increased in recent years due to high property purchase rates or inheritance. New occupants tend to entirely discard contents.
- Wariness of transporting non-permitted items, which can result in fines.
- Local municipal authorities in Eastern Hungarian villages organise transport of local Roma to Budapest to participate in *lomtalanítás*.

Source: authors' representation

On the basis of the preceding evidence and ethnography oriented observation various entrepreneurial behaviour patterns emerged as follows:

- Groups of collectors effectively constitute family businesses;
- Collection territory is denoted by explicit occupation of discrete waste piles;
- Work roles of collectors in relation to item disposal tends to be clearly defined;
- Groups of collectors tend to travel substantial distances from their homes and to transport material.

4.2. Unstructured discussions with property renovation workers

The key informant in this case is acquainted with one of the authors and a visit took place in February 2022 to a house under renovation outside Budapest. The informant is Roma and runs a formally registered business with various co-workers, the number of which may fluctuate due to work requirements. Most are paid in cash to infer a strong extent of informal employment. He has worked in *lomtalanítás* collections and several of his co-workers regularly participate as such. One English speaking Roma co-worker, aged in his 30s, mentioned he regularly works in the construction industry in Germany as a means of income generation, given difficulties of working legitimately in Hungary due to high personal taxation levels. He also felt this aspect is a prime driver of *lomtalanítás* related informal work.

4.3. Unstructured discussion with *méhtelep* supplier

A *méhtelep*⁵ outside Budapest was selected for enquiry, but we were not permitted to enter. The attendant informed us the main business is dismantling scrap vehicles subject to regulations. A non-Roma supplier then arrived carrying a scrap vehicle. He confirmed this as his legitimate business and that he is paid by the *méhtelep* for valuable parts which he asserted are resold illegally on international markets. This would support evidence for existence of illegal markets for waste

⁵ Scrapyards typically larger in scale than *vasudvars*.

products in the CEE region (Ramusch et al., 2015; Vaccari & Perteghella, 2016). The informant also suggested *lomtalanítás* material is primarily sold to *vasudvars* of which our informant suggested there are many operating as semi-legal entities, and which subsequently resell to the larger *méhteleps*. This picture was confirmed by several informal collectors who attested that they never directly sell to *méhteleps*. The overall picture of the transactional supply chain is thus formed of informal collectors acting as ‘frontline’ suppliers to *méhteleps* through *vasudvar* intermediaries.

4.4. Unstructured discussions with flea market vendors

The first discussion took place in May 2022 at a market outside Budapest. This is composed of stalls with licensed vendors. Merchandise appeared to mostly consist of antiques and to be drawn from *lomtalanítás* but this was denied by the single vendor/discussant approached. He suggested he procured items such as antique clocks from other registered intermediaries who may in turn have procured them from *lomtalanítás* collectors.

The second discussion took place in June 2022 at another market also outside Budapest. A vendor was approached who generally provided similar narrative to the previous discussant. Observation suggested a wide range of items and mostly similar to ‘nearly new’ appliances such as DVD players found on *lomtalanítás* sites. Interestingly, this would suggest ‘inbuilt obsolescence’ due to technological development resulting in possession of outdated domestic appliances is a motivational factor for *lomtalanítás* disposal. Uniformed custom officials were also present to infer existence of illicit international transactions.

4.5. Semi-structured interviews with MPAMC officials

The first interview took place in April 2022 with a supervisor of regular recyclable waste collection in district II of Budapest. He largely reinforced findings of discussions with informal collectors in that he suggested collection is largely territorial and sites established on a ‘first come, first served’ basis and that there may be prior agreement on territory. He also suggested copper, iron and aluminium are the most valuable and sought-after materials and that most material is destined for *vasudvars* and that collector groups have tacit business arrangements with them. The practice of stripping TVs and computer parts was also confirmed but noted that this led to public littering thereby presenting a picture of anti-social behaviour. In overall terms he did not have a positive view of *lomtalanítás* and suggested substantially flammable residual material leads to an increase in waste for incineration.

This was followed by an interview with two senior officials in June 2022 responsible for *lomtalanítás* in the whole of Budapest. The following major points emerged:

- *Lomtalanítás* has existed since 1972 and waste quantities have increased with intervening economic and technological development.
- MPAMC monitors residual waste quantities from *lomtalanítás* and recorded an approximate doubling of waste tonnage since 2012.
- They have no knowledge of similar practices to *lomtalanítás* in neighbouring countries in the CEE region. This was confirmed by subsequent investigation although a similar service is offered in Warsaw⁶.
- Residual waste is direct to incineration sites which might be adapted to provide domestic heating, thus inferring ambitions to implement circular economy oriented practices.
- Residents routinely illegally deposit TVs and computer parts. Designated collection points for such items are available but residents find it more convenient to deposit them in *lomtalanítás* sites.
- There is no direct liaison between official and *lomtalanítás* collectors and employees.
- *Lomtalanítás* is not generally held in high public esteem. Informal collectors for example may burn plastic from wiring to emit noxious fumes.
- The prestige of iron, copper and aluminium as valuable items was confirmed and burnable wood is mostly used for heating.

A further interview was conducted later in June to elucidate clarification of these points. The interviewees confirmed that MPAMC quantifies total municipal waste collected amounting to around 600,000 tonnes in 2021, of which approximately 42,000 tonnes (7 percent) was residual *lomtalanítás* waste. They further suggested the extent of residual waste is reduced by between 10 and 40 percent by informal collection.

In overall terms, a picture arises of official and Roma informal collectors acting as separate entities within a single operational ecosystem. MPAMC explicitly adopts circular economy principles through direct recycling while Roma informal collectors tacitly adopt them through *lomtalanítás*, entailing associative application of bricolage. This aspect forms content related underpinning of the subsequent discussion section.

4.6. Thematisation

With reference to the research approach outlined in the methodology section, the following themes were derived:

a. Circular economy principles are tacitly applied by informal and official waste collectors.

⁶ <https://www.collectors2020.eu/wcs-ppw/warsaw-pl>; Accessed – 10 July 2022.

Lomtalanítás is unique as a means of bulky waste disposal in that it is apparently only extensively practised in Hungary and its existence predates transition. By contrast, municipal waste collection authorities in cities in established market economies such as Berlin and Vienna require residents to dispose of bulky items in designated locations (Municipal Waste Europe, 2022)⁷. Such services are subject to communal charges levied on residents, and while similar practices are apparently not widely applied in other CEE transitional countries, residential disposal of environmentally harmful material is perhaps reflective of lower levels of public waste recycling awareness than in Western Europe (Minelgaite & Liobikiene, 2019). This aspect was reinforced in interviews with MPAMC officials who suggested that while weekly recycling collection is practiced and a recycling centre has been initiated for bulky items, public recycling practices are fragmented.

Thus MPAMC explicitly adheres to circular economy principles against a background of somewhat weak public environmental awareness and tacit tolerance of *lomtalanítás* acting as a means of serendipitously addressing a notional ‘sustainability awareness’ gap. Findings demonstrate that Roma informal collectors, by systematically sorting and transporting *lomtalanítás* material contribute to overall waste reduction. Indeed if the practice was discontinued, MPAMC might face substantially higher residual waste quantity levels, including metals which may not be easily disposable. In this regard, Roma informal collectors, through acting as sources of material for informal/illegal markets apply circular economy practices. However they are principally motivated by market value and while they may not explicitly appear to possess notional levels of environmental awareness, their entrepreneurial activity serendipitously contributes to overall residential waste reduction. This theme is closely aligned with the second research objective in that identified informal entrepreneurial practices are strongly indicative of necessity orientation.

b. Social capital utilisation enables informal entrepreneurship

Given unstructured discussions revealed notable presence of family based informal collectors and willingness to travel substantial distances to *lomtalanítás* sites, the existence of underlying intricate social capital networks is assumed. Dominance of informal family enterprises infers social capital is derived from intimate cognitive institutional norms which may in turn be derived from lack of trust in state institutions in a transitional context (Welter & Smallbone, 2011). Similarly, in a Russian based study, Chepurenko (2018) suggests family embedded

⁷ European Commission, Capital factsheet – Vienna/Austria, Assessment of separate collection schemes in the 28 capitals of the EU <https://www.municipalwasteurope.eu/sites/default/files/AT%20Vienna%20Capital%20factsheet.pdf> and <https://www.municipalwasteurope.eu/sites/default/files/DE%20Berlin%20Capital%20factsheet.pdf>, Accessed 20 July 2022; Municipal Waste Europe is an international non-profit organization registered by the European Commission.

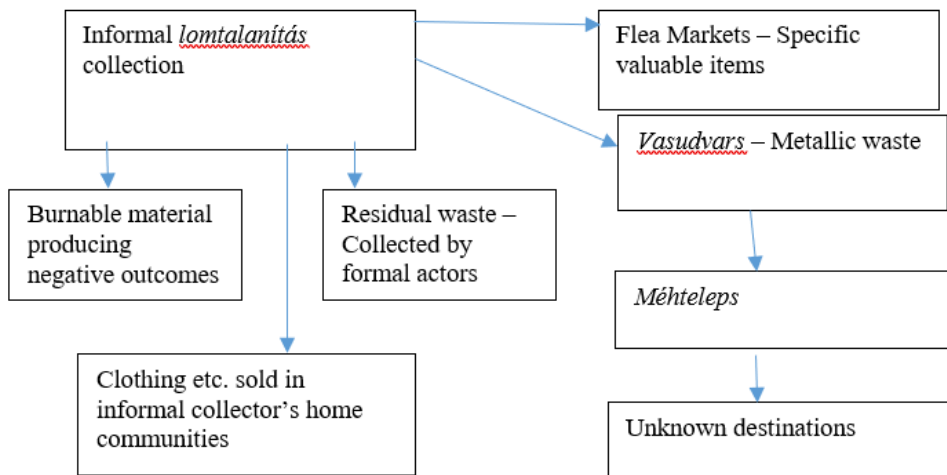
trust substitutes for trust in state institutions and that work roles of family members are allocated on an interpersonal basis as was observed in *lomtalanítás* visits.

Such phenomena infer that family based social capital networks effectively embed informal entrepreneurship, although in our study findings of unstructured discussions suggest cognisance of waste handling regulations. This may in turn infer a need to avoid official penalisation rather than a desire to conform to state based institutional norms. Relatedly, Escandon-Barbosa et al., (2019) by considering social capital as an informal institution, suggest it drives a stronger relationship between itself and entrepreneurship in developing countries than in developed counterparts. While denoting CEE transitional countries as ‘developing’ is debatable, the presence of a substantial informal economy in the region (Williams & Bezeredi, 2018), would suggest resonance with the foregoing observation. In the case of this theme, narrative would suggest strong conformity to collective social capital formation in informal economies similar to that identified by Berrou and Gondard –Delcroix (2018), thereby closely addressing the first research objective on social capital utilisation.

c. Market based norms drive a transactional supply chain

Findings generally reveal that *lomtalanítás* acts as a source of material for two forms of markets. Firstly, antique items notionally comprise a relatively small quantity of collected *lomtalanítás* material and tend to appear in flea markets. While these are legal entities, the presence of *lomtalanítás* derived items would suggest markets operate with a veneer of legality wherein transactions may not always be declared for taxation purposes. Furthermore, Ramusch et al., (2015) suggest Roma were active in collecting bulky and reusable waste items in Austria and transporting them to flea markets in Hungary which infers an international market for waste items has developed, subject to varying interpretations of legality.

Our findings also suggest the major proportion of informally collected *lomtalanítás* material is destined for *vasudvars*. While our study revealed no evidence of international destinations for *lomtalanítás* material, previous studies (Ramusch et al., 2015; Vaccari & Perteghella, 2016), indicate Roma involvement in markets as suppliers principally of metallic items. Moreover the practice of dismantling discarded TV sets and similar electronically based items in *lomtalanítás* deposits suggests systematic search and acquisition of valuable material which may be recycled in international locations. Garg (2021) for instance points to India as a prime destination for electronic waste. Synthesis of findings from informally derived unstructured discussions and formally derived semi-structured interviews presents evidence for existence of a transactional supply chain as depicted in Figure 3.

Figure 3. Transactional supply chain

Source: authors' representation

MPAMC interviewees indicated that *méhtelep* scrapyards are legally required to dispose of harmful material and substances. However, our findings suggest they act as recipients of *lomtalanítás* material from *vasudvars* and thus may act as prime local intermediaries in an international supply chain. Assumed illegal activity conducted by such operators presents research difficulties in that objective investigation is unlikely to transpire if true identities of researchers are revealed to research subjects (Potter & Potter, 2021). Thematized evidence would nonetheless suggest that the transactional supply chain is driven by informal entrepreneurial behaviour, thereby strongly conforming to the second research objective on Roma entrepreneurial practices.

d. Informal collectors utilise bricolage capabilities

Human capital, classically defined as the ‘sum of knowledge, skills and capabilities’ of individuals (Becker, 1964). Studies of informal entrepreneurship tend to obliquely feature bricolage as a substitutional construct for human capital (i.e. Wieranga, 2020; Adu-Gyamfi et al., 2022). Observation of occupation of *lomtalanítás* sites in this study and subsequent systematic waste sorting and transportation processes infer a pronounced level of bricolage-based human capital utilisation by informal collectors. Relatively low formal Roma employment rates (Munté-Pascual et al., 2022) would infer Roma are generally perceived as predominantly ‘unskilled’, yet our observations and findings suggest an intrinsic disposition towards efficient human capital utilisation within informally bound cognitive parameters.

Roma informal collectors conduct bricolage practices through, for example, the use of wood for heating fuel, thereby utilising *lomtalanítás* derived resources.

Similarly, collection and sale of items for further use constitutes adherence to circular economy recycling principles and offers scope for integration of such practices with official waste disposal practices. Coded evidence for developing this theme suggests strong conformity with bricolage practices. Therefore strong alignment with the second research objective on Roma entrepreneurial practices is deduced. Nonetheless, the communal nature of activities would also suggest a lesser extent of alignment with the first research objective focusing on social capital utilisation.

5. Discussion

Content of themes in the preceding section provides a basis for consideration of paradoxes emerging from this study in that evidence would suggest the presence of contradictions between informal entrepreneurial practices and official policy objectives. The paradoxes are listed as follows, followed by the presentation of a model which attempts to portray how such contradictions may be addressed:

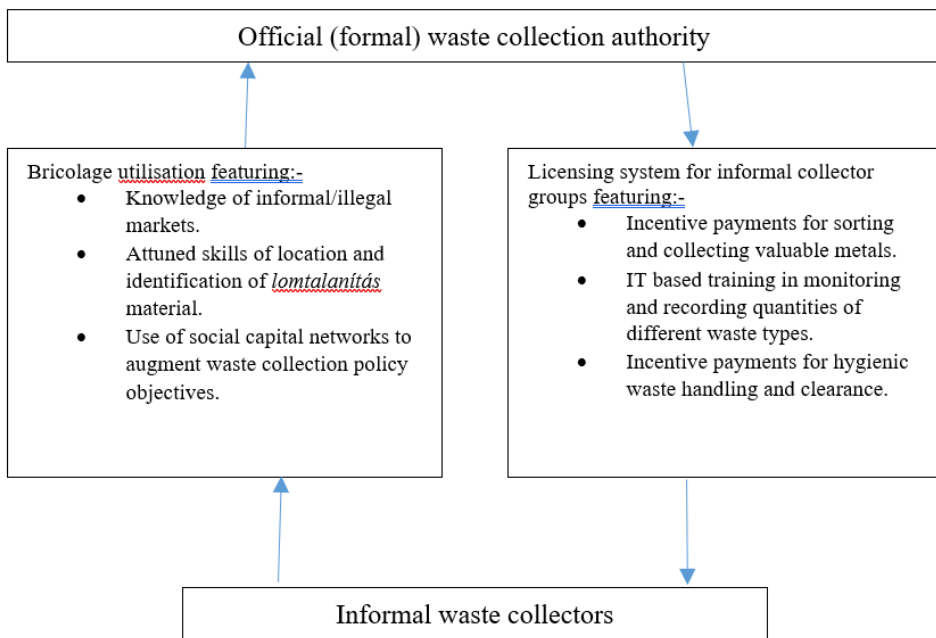
- *Lomtalanítás* is unique as a means of municipal waste collection in the EU, yet formal governance is not strictly applied and informal collection is tacitly tolerated by authorities while encouraging alternatives such as furniture recycling.
- Residents with assumed higher social status may fragrantly dispose of unpermitted items while informal waste collectors with relatively low social status are more active in terms of applying circular economy principles, albeit tacitly.
- Informal waste collection is widely considered as a low prestige activity yet may be financially lucrative for those involved. *Lomtalanítás* waste accounts for a relatively low proportion of municipal waste, yet metallic material in particular is valuable for informal collectors.
- *Lomtalanítás* is not intended to act as a social policy tool, yet it inadvertently has the effect of facilitating income sources for informal collectors and providing necessities such as heating fuel for lower income groups.
- While informal *lomtalanítás* waste collection is illegal, it effectively forms the lower level of a market for municipal waste material. Informal waste collectors thus act as frontline suppliers firstly to *vasudvars* and subsequently to nominally legally registered *méhteleps*. Further destinations and use of material is largely unknown and thus worthy of further investigation. Moreover, informal waste collection appears to be a highly structured and organised activity, yet is hierarchical by nature with *méhteleps* occupying upper levels.

These paradoxes and the preceding themes are used as a research embedded basis for development of a model of notional integration of informal and official waste collection practices embodying circular economy orientation. The model is designed to encapsulate the themes and paradoxes derived from our study in order

to guide conceptual and practical integration of practices between formal and informal entities.

The overall impression of informal entrepreneurship gained from our findings accords with its depiction in the ecosystem model presented in Figure 1 in that practices are derived from informal institutions which are primarily cognitive. In contrast, the activities of the municipal waste collection authority are not representative of formal entrepreneurship. However, by facilitating *lomtalanítás* it enables informal entrepreneurship, and while relations between formal actors and *lomtalanítás* collectors may be considered independent of each other, in practice both entities are subject to mutual dependence in order to conduct their respective activities. The following model in figure 4 depicts how such activities could be explicitly integrated.

Figure 4. Integration of informal and official waste collection practices



Source: authors' representation

While incorporating official incentivisation for informal activities, the model does not directly encompass formalisation as such. On the basis of experience in Brazil outlined by Rebehy (2017), licensing might embody recognition of collector groups as co-operative organizations subject to meeting operational criteria. Given Roma possess IT skills through smartphone usage, monitoring of waste forms could for example conceivably encompass bar code scanning of items as pioneered in informal waste collection in China (Xue, 2019).

Hartley et al. (2020), formulate a life-cycle based approach for EU circular economy policy incorporating liberalisation of waste trading. On this basis, this model proposes payment for valuable materials incumbent upon knowledge of informal/illegal markets by informal collectors. Integration of Roma bricolage capabilities might also be integrated with official policy measures. In overall terms, the model offers a perspective whereby *lomtalanítás* might be utilised to pursue circular economy related objectives outlined in the following propositions:

P1 – Informal municipal waste collection enhances overall social well-being. Social and economic benefits of *lomtalanítás* for Roma informal collectors are largely manifested in regular income sources, yet wider social benefits exist in the form of a convenient service for bulky waste disposal. This aspect is largely unacknowledged and this study demonstrates potential for explicit integration of Roma bricolage based practices into official waste collection policy.

P2 – Informal municipal waste collection augments circular economy development. *Lomtalanítás* aptly illustrates circular economy principles through efficient absorption of municipal bulky waste. Although the final use of some materials may be environmentally harmful, the integration of *lomtalanítás* activities between formal and informal actors would serve to reduce quantities of waste entering illegal markets. Bricolage capabilities of informal collectors could potentially be utilised through IT enabled monitoring of material to discourage harmful waste disposal.

Conclusions

The research objectives outlined in the introductory section are evaluated as follows:

- *Examination of social capital utilisation through Roma informal entrepreneurial activities.*

Our study reveals robust existence of family embedded social capital networks. Informal collector organisations are not sedentary and utilise networks to locate collecting opportunities and subsequently supply material to markets with varying shades of legality. Research findings indicate that social capital is institutionally embedded in cognitive terms and derived from Roma cultural norms. Findings also suggest that social capital within informal collector groups acquires a hierarchical or vertical nature in accordance with familial structures with senior generations assuming leadership positions. This is diametrically opposed to egalitarian oriented social capital enabling the development of short term ‘bonding’ and longer term ‘bridging’ social capital ties (De Carolis & Saporito, 2006). Nonetheless, our findings in this study suggest such ties may also be developed by hierarchical or vertical means.

- *Examination of entrepreneurial processes in relation to informal municipal waste collection.*

Lomtalanítás activities in particular reveal strong conformity with bricolage practices in terms of organisation of work roles. Intrinsic Roma cultural norms may also account for bargaining practices in subsequent stages of the transactional supply chain. While flea markets, *vasudvars* and *méhteleps* mostly operate as legally based entities, transactions between informal *lomtalanítás* collectors and subsequent actors may not always be recorded for taxation purposes. This would suggest an element of transition related institutional embeddedness pervading into waste material transaction practices. Moreover, it would reinforce evidence for the existence of vertically oriented social capital in the informal waste collection process.

A prevailing popular assumption that Roma informal entrepreneurship is driven by necessity orientation was not deduced from our findings. While Roma individuals indeed occupy lower income levels and social status than ‘mainstream’ counterparts, their informal entrepreneurial activity exhibited in the course of this study suggests a strong tendency towards opportunity orientation. Moreover, their activities serendipitously produce social value which is compatible with circular economy principles in that informal waste collection possesses an element of efficient disposal which may not be practicable if *lomtalanítás* was discontinued.

In theoretical terms, this study advances the debate on informal entrepreneurship by presenting a unique case of officially enabled informal entrepreneurial practices unintentionally adhering to circular economy principles of resource renewability and environmental sustainability. To our knowledge no study of this nature has been previously applied to Roma informal collectors by soliciting narrative from collectors themselves. Hence, it serves as a foundation for further micro-based examination of informal waste collectors in different cultural contexts.

Implications for municipal waste policy development in Hungary are also present. Principally, potential exists for integrating Roma bricolage based practices with circular economy related official practices. This may to some extent infer movement towards the formalisation of activities, but ultimately there would need to be explicit recognition of the potential for direct involvement of informal entrepreneurial actors in circular economy waste policy development.

Limitations

Well documented methodological difficulties in using Roma as research subjects were widely encountered in this study. Principally, an ethical issue arises in that we did not initially reveal our true identities or the purpose of our research in unstructured discussions. However, an ethical principle of consent for use of narrative was maintained throughout the research process as outlined in the methodology section. While the unstructured approach allowed us to develop rapport with research subjects, memorisation of conversations is not always reliable in terms of deriving findings. Field research also tended to overly focus on *lomtalanítás* as opposed to subsequent stages of the transactional supply chain, thus engendering a

degree of conjecture in terms of inductively deriving insights on the nature of informal/illegal markets for waste products. This was largely due to a lack of resources, yet while the existence of informal/illegal markets presents intriguing research opportunities, careful consideration needs to be paid to the extent of openness conveyed in future studies.

Finally, we did not collect data on quantities and prices of transacted material which would be necessary for micro-based economic analysis of the informal waste sector. This was however not our intention but rather to provide a foundation for further micro-based entrepreneurially oriented research of informal Roma economic actors in the CEE region.

References

- Adu-Gyamfi, R., Kuada, J., & Asongu, S. A. (2022). An Integrative Framework for Formal and Informal Entrepreneurship Research in Africa. *Journal of African Business*, 22(4), 1-21. <https://doi.org/10.1080/15228916.2022.2042102>
- Audretsch, D. B., Belitski, M., Chowdhury, F., & Desai, S. (2022). Necessity or opportunity? Government size, tax policy, corruption, and implications for entrepreneurship. *Small Business Economics*, 58(4), 2025-2042. <https://doi.org/10.1007/s11187-021-00497-2>
- Autio, E., & Fu, K. (2015). Economic and political institutions and entry into formal and informal entrepreneurship. *Asia Pacific Journal of Management*, 32(1), 67-94. <https://doi.org/10.1007/s10490-014-9381-0>
- Baker, T., Miner, S., & Eesley, D. T. (2003). Improvising firms: Bricolage, account giving and improvisational competencies in the founding process. *Research Policy*, 32(2), 255-76. [https://doi.org/10.1016/S0048-7333\(02\)00099-9](https://doi.org/10.1016/S0048-7333(02)00099-9)
- Becker, G. S. (1964). *Human Capital*. New York, Columbia University Press.
- Berrou, J-P., & Gondard-Delcroix, C. (2018). Dynamics of social networks of urban informal entrepreneurs in an African economy. *Review of Social Economy*, 76(2), 167-197. <https://doi.org/10.1080/00346764.2017.1349330>
- Cebotari, V. (2016). Civic, ethnic, hybrid and atomised identities in Central and Eastern Europe. *Identities*, 23(6), 648-666. <https://doi.org/10.1080/1070289X.2015.1059338>
- Centobelli, P., Cerchione, R., Chiaroni, D., Del Vecchio, P., & Urbinati, A. (2020). Designing business models in circular economy: A systematic literature review and research agenda. *Business Strategy & the Environment*, 29(4), 1734-1749. <https://doi.org/10.1002/bse.2466>
- Chepurenko, A. (2018). Small family business in Russia: formal or informal? *International Journal of Sociology and Social Policy*, 38(9/10), 809-822. <https://doi.org/10.1108/IJSSP-04-2017-0046>
- Condon, L., Bedford, H., Ireland, L., Kerr, S., Mytton, J., Richardson, Z., & Jackson, C. (2019). Engaging Gypsy, Roma, and Traveller Communities in Research:

- Maximizing Opportunities and Overcoming Challenges. *Qualitative Health Research*, 29(9), 1324-1333. <https://doi.org/10.1177/1049732318813558>
- Cope, J. (2005). Researching Entrepreneurship through Phenomenological Inquiry: Philosophical and Methodological Issues. *International Small Business Journal*, 23(2), 163-189. <https://doi.org/10.1177/0266242605050511>
- De Carolis, D., & Saporito, P. (2006). Social capital, cognition, and entrepreneurial opportunities: A theoretical framework. *Entrepreneurship Theory and Practice*, 30(1), 41-56. <https://doi.org/10.1111/j.1540-6520.2006.00109.x>
- Durst, J. (2022). New Redistributors in Times of Insecurity: Different Types of Informal Lending in Hungary. In: M. Brazzabeni, M.I. Cunha & M. Fotta (Eds.). *Gypsy Economy. Romani Livelihoods and Notions of Worth in the 21st Century* (pp. 49-67). Berghahn Books, New York – Oxford.
- Escandon-Barbosa, D., Hurtado-Ayala, A., & Urbano-Pulido, D. (2019). Exploring the Relationship between Formal and Informal Institutions, Social Capital, and Entrepreneurial Activity in Developing and Developed Countries. *Sustainability*, 11(2), 550-570. <https://doi.org/10.3390/su11020550>
- Etzkowitz, H. (2003). Innovation in Innovation: The Triple Helix of University-Industry Government Relations. *Social Science Information*, 42(3), 293-337. <https://doi.org/10.1177/05390184030423002>
- Farkas, J. Z., Kovács, Z. & Csomós, G. (2022). The availability of green spaces for different socio-economic groups in cities: a case study of Budapest, Hungary. *Journal of Maps*, 18, 1-9. <https://doi.org/10.1080/17445647.2022.2079433>
- Fitch-Roy, O., Benson, D., & Monciardini, D. (2020). Going around in circles? Conceptual recycling, patching and policy layering in the EU circular economy package. *Environmental politics*, 29(6), 983-1003. <https://doi.org/10.1080/09644016.2019.1673996>
- Foley, D., & Cooney, T. M. (2017). Entrepreneurship, enterprise and Irish Travellers. *Small Enterprise Research*, 24(1), 73-87. <https://doi.org/10.1080/13215906.2017.1295880>
- Gaaliche, M. (2013). Local regulation between formal and informal institutions: analysis by application to the case of the town of Ksar-Hellal (Tunisia). *Eastern Journal of European Studies*, 4(1), 17-24.
- Garg, C. (2021). Modeling the e-waste mitigation strategies using grey-theory and DEMATEL framework. *Journal of Cleaner Production*, 281(2021) 1-17. <https://doi.org/10.1016/j.jclepro.2020.124035>
- Granovetter, M. (1985). Economic Action and Social Structure: The Problem of Embeddedness. *American Journal of Sociology*, 91(3), 481-510. <https://doi.org/10.1086/228311>
- Grimes, M. G., McMullen, J. S, Vogus T. J., & Miller, T. L. (2013). Studying the Origins of Social Entrepreneurship: Compassion and the Role of Embedded Agency. *Academy of Management Review*, 38(3), 460-463. <https://doi.org/10.5465/amr.2012.0429>

- Guibrunet, L. (2021). The interplay of tacit and explicit knowledge in the informal economy: the atypical case of a recycling family business in Mexico City. *International Development Planning Review*, 43(1), 13-31. <https://doi.org/10.3828/idpr.2019.6>
- Hall, J. L., & Zeman, C. (2018). Community-based participatory research with the Roma of Pata Rât, Romania: exploring toxic environmental health conditions. *Journal of Ethnographic & Qualitative Research*, 13(2), 92-106.
- Hammersley, M., & Atkinson, P. (1995). *Ethnography: Principles in Practice*. Routledge: London, 2nd edition.
- Hartley, K., van Santen, R., & Kirchherr, J. (2020). Policies for transitioning towards a circular economy: Expectations from the European Union (EU). *Resources, conservation and recycling*, 155(104634), 25-35. <https://doi.org/10.1016/j.resconrec.2019.104634>
- Horodnic, I.A., Williams, C. C., & Chițace, J. (2022). Evaluating the relationship between sustainable development, localisation and the informal economy: evidence from Romania. *Eastern Journal of European Studies*, 13(2), 54-76. <https://doi.org/10.47743/ejes-2022-0203>
- Igwe, P. A., Odunukan, K., Rahman, M., Rugara, D. G., & Ochinanwata, C. (2020). How entrepreneurship ecosystem influences the development of frugal innovation and informal entrepreneurship. *Thunderbird International Business Review*, 62(5), 475-488. <https://doi.org/10.1002/tie.22157>
- Keresztély, K., & Scott, J. (2012). Urban Regeneration in the Post-Socialist Context: Budapest and the Search for a Social Dimension. *European Planning Studies*, 20(7), 1111-1134. <https://doi.org/10.1080/09654313.2012.674346>
- Kreiser, P. M., Patel, P. C., & Fiet, J. O. (2013). The influence of changes in social capital on firm founding activities. *Entrepreneurship Theory and Practice*, 37(3), 539-567. <https://doi.org/10.1111/etap.12039>
- Laing, E., van Stel, A., & Storey, D. J. (2021). Formal and informal entrepreneurship: a cross-country policy perspective. *Small Business Economics: An Entrepreneurship Journal*, 59, 1-20. <https://doi.org/10.1007/s11187-021-00548-8>
- Lamy, E. (2019). How to Make Social Entrepreneurship Sustainable? A Diagnosis and a Few Elements of a Response. *Journal of Business Ethics*, 155(3), 645-662. <https://doi.org/10.1007/s10551-017-3485-7>
- Leipold, S. (2021). Transforming ecological modernization ‘from within’ or perpetuating it? The circular economy as EU environmental policy narrative. *Environmental politics*, 30(6), 1045-1067. <https://doi.org/10.1080/09644016.2020.1868863>
- Lumpkin, G. T., Bacq, S., & Pidduck, R. J. (2018). Where Change Happens: Community-Level Phenomena in Social Entrepreneurship Research. *Journal of Small Business Management*, 56(1), 24-50. <https://doi.org/10.1111/jsbm.12379>
- Málovics, G., Crețan, R., Méreiné, B. B., & Tóth, J. (2019). Urban Roma, segregation and place attachment in Szeged, Hungary. *Area*, 51(1), 72-83. <https://doi.org/10.1111/area.12426>

- Masoudi, N., & Bowie, D. (2021). *The commons problem* in the presence of negative externalities. *Journal of Economic Studies*, 48(8), 1528-1547. <https://doi.org/10.1108/JES-07-2020-0340>
- Matos, S., & Hall, J. (2020). An exploratory study of entrepreneurs in impoverished communities: when institutional factors and individual characteristics result in non-productive entrepreneurship, *Entrepreneurship & Regional Development*, 32(1/2), 134-155. <https://doi.org/10.1080/08985626.2019.1640476>
- Messing, V. (2014). Methodological puzzles of surveying Roma/Gypsy populations. *Ethnicities*, 14(6), 811-829. <https://doi.org/10.1177/1468796814542180>
- Minelgaite, A., & Liobikiene, G. (2019). The problem of not waste sorting behaviour, comparison of waste sorters and non-sorters in European Union: Cross-cultural analysis. *Science of the Total Environment*, 672, 174-182. <https://doi.org/10.1016/j.scitotenv.2019.03.342>
- Moore, J.F. (1993). Predators and prey: a new ecology of competition. *Harvard Business Review*, 71(3), 75-83.
- Municipal Waste Europe. (2022). *Municipal Waste Europe*. <https://www.municipalwaste.eu>.
- Munté-Pascual, A., Khalfaoui, A., Valero, D., & Redondo-Sama, G. (2022). Social Impact Indicators in the Context of the Roma Community: Contributions to the Debate on Methodological Implications. *International Journal of Qualitative Methods*, 21, 1-10. <https://doi.org/10.1177/16094069211064668>
- Nahapiet, J., & Ghoshal, S. (1998). Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review*, 23(2), 242-266. <https://doi.org/10.5465/AMR.1998.533225>
- Nithya, R., Sivasankari, C., & Thirunavukkarasu, A. (2020). Electronic waste generation, regulation and metal recovery: a review. *Environmental Chemistry Letters*, 19(2), 1347-1368. <https://doi.org/10.1007/s10311-020-01111-9>
- O'Leary, Z. (2005). *Researching Real-World Problems: A Guide to Methods of Inquiry*. London: Sage.
- Potter, L., & Potter, G. R. (2021). "Snitches get stitches": researching both sides of illegal markets. *Journal of Organizational Ethnography*, 10(1), 7-20. <https://doi.org/10.1108/JOE-01-2020-0003>
- Pulay, G. (2016). 'I'm Good but also Mad': Street-economy in a Poor Neighbourhood of Bucharest. In: M. Brazzabeni, M.I. Cunha & M. Fotta (Eds.). *Gypsy Economy. Romani Livelihoods and Notions of Worth in the 21st Century* (pp. 127-144). Berghahn Books, New York-Oxford.
- Ramusch, R., Pertl, A., Scherhauser, S., Schmied, E., & Obersteiner, G. (2015). Modelling informally collected quantities of bulky waste and reusable items in Austria. *Waste Management*, 44, 3-14. <https://doi.org/10.1016/j.wasman.2015.07.015>
- Rebehy, P. C. P. W., Costa, A. L., Campello, C. A., de Freitas Espinoza, D., & Neto, M. J. (2017). Innovative social business of selective waste collection in Brazil: Cleaner

- production and poverty reduction. *Journal of Cleaner Production*, 15(154), 462-47. <https://doi.org/10.1016/j.jclepro.2017.03.173>
- Rose, S., & Viju, C. (2014). Income inequality in post-communist Central and Eastern European countries. *Eastern Journal of European Studies*, 5(1), 5-19.
- Roundy, P. T., & Bayer, M. A. (2019). To bridge or buffer? A resource dependence theory of nascent entrepreneurial ecosystems. *Journal of Entrepreneurship in Emerging Economies*, 11(4), 550-575. <http://dx.doi.org/10.1108/JEEE-06-2018-0064>
- Scheinberg, A., Nesić, J., Savain, R., Luppi, P., Sinnott, P., Petean, F., & Pop, F. (2016). From collision to collaboration – Integrating informal recyclers and re-use operators in Europe: A review. *Waste Management & Research: The Journal of the International Solid Wastes & Public Cleansing Association*, 34(9), 820-839. <https://doi.org/10.1177/0734242X16657608>
- Strauss, A., & Corbin, J. (1990). *Basics of Qualitative Research – Grounded Theory Procedures and Techniques*. Newbury Park, UK: SAGE Publications.
- Tileagă, C., Popoviciu, S., & Aldridge, J. (2021). Short-term ethnography and women's voices: insights from fieldwork with Roma communities. *Journal of Ethnic & Migration Studies*, 48(5) 1246-1263. <https://doi.org/10.1080/1369183X.2021.1941819>
- Vaccari, M., & Perteghella, A. (2016). Resource recovery from waste by Roma in the Balkans: A case study from Zavidovici (BiH), *Waste Management & Research: The Journal of the International Solid Wastes and Public Cleansing Association*, 34(9), 866-74. <https://doi.org/10.1177/0734242X16652964>
- Velis, C. (2018). Waste pickers in Global South: Informal recycling sector in a circular economy era. *Waste Management & Research: The Journal for a Sustainable Circular Economy*, 35(4), 329-331. <https://doi.org/10.1177/0734242X17702024>
- Welter, F. & Smallbone, D. (2011). Institutional Perspectives on Entrepreneurial Behavior in Challenging Environments. *Journal of Small Business Management*, 49(1), 107–125. <https://doi.org/10.1109/EMR.2014.6823808>
- Wierenga, M. (2020). Uncovering the scaling of innovations developed by grassroots entrepreneurs in low-income settings. *Entrepreneurship & Regional Development*, 32(1/2), 63-90. <https://doi.org/10.1080/08985626.2019.1640478>
- Williams, C. C., & Oz-Yalaman, G. (2021). The coronavirus pandemic, short-term employment support schemes and undeclared work: some lessons from Europe. *Employee Relations*, 43(3), 630-643. <https://doi.org/10.1108/ER-05-2020-0218>
- Williams, C. C., & Bezeredi, S. (2018). Explaining informal entrepreneurship in South-East Europe: a tax morale approach. *Eastern Journal of European Studies*, 9(2), 47-68.
- Xue, Y. (2019). Can intelligent collection integrate informal sector for urban resource recycling in China? *Journal of Cleaner Production*, 208, 307-315. <https://doi.org/10.1016/j.jclepro.2018.10.155>