Human Organization

ISSN: 0018-7259 (Print) 1938-3525 (Online) Journal homepage: www.tandfonline.com/journals/rhum20

Intersectionality and the role of place in ethnographic research on informal recyclers' livelihoods

Noleen R. Chikowore

To cite this article: Noleen R. Chikowore (08 May 2025): Intersectionality and the role of place in ethnographic research on informal recyclers' livelihoods, Human Organization, DOI: 10.1080/00187259.2025.2484788

To link to this article: https://doi.org/10.1080/00187259.2025.2484788

HUMAN ORGANIZATION
https://doi.org/10.1080/00187259.2025.2484788

Routledge
Taylor & Francis Group

Intersectionality and the role of place in ethnographic research on informal recyclers' livelihoods

Noleen R. Chikowore

Sustainability Research Institute, School of Earth and Environment, University of Leeds, Leeds, UK

ABSTRACT

How social structures such as gender, race, and class shape informal recyclers' livelihoods and how they actively create and navigate space in their everyday lives remain understudied in the Global North. In this article I highlight how the diverse social identities of informal recyclers intersect to influence their livelihood activities, focusing on football tailgates as emblematic sites of consumption and discard. Football tailgates are social events where football fans socialise and party before a football game, and tailgaters are the fans who attend football tailgates. I investigated how the intersectionality of informal recyclers' self- and externally perceived social identities shape their livelihood activity and explored how the identity of place determines it as a site of collection of recyclable material. The findings indicate that informal recyclers are self-conscious of the stereotyping, stigma, and discrimination associated with their self and externally perceived social identities. Low social class has the most impact on how informal recyclers engage in their livelihood. Their activities tend to be more acceptable at football tailgates than other places. I argue that the intersection of informal recyclers' social identities with place and social capital unravels the dynamics that shape their participation in discard practices.

IMPLICATIONS

- Discard and waste management studies should adopt a more nuanced approach that accounts for the complex interplay of social identities in shaping informal recycling livelihoods to inform inclusive interventions to reduce stigma and discrimination, ensuring that all informal recyclers have equal opportunities and protections.
- Informal recyclers rely heavily on social capital to navigate their livelihoods at football tailgates. Key stakeholders focusing on sustainability and waste need to strengthen tailgating community support and their social networks to maximise the environmental contribution of informal recyclers.
- The acceptability of informal recycling activities at football tailgates, for example, illustrates how place and social networks influence participation in informal economies and discard practices. Further studies can explore the spatial and social dimensions of discard behaviors, recognizing how place-based factors and social capital shape the dynamics of managing waste by informal recyclers.

SOCIAL MEDIA STATEMENT

Noleen Chikowore describes how informal recyclers navigate their livelihoods at football tailgates, and in so doing, highlights how place and social networks influence participation in informal economies.

KEYWORDS

Informal recyclers; intersectionality; discard studies; sustainability; social capital

Until recently, the role of informal recycling livelihoods in the Global North, in contrast to the Global South, was often relegated to the fringes of mainstream discard studies discourse and was not as recognised as a key aspect of sustainability. Embedded within informal recycling are the diverse social identities of the recyclers, including gender, race, ethnicity, class and immigration status. These intersect to shape the experiences, opportunities, and challenges informal recyclers face in their pursuit of a livelihood in different geographic contexts, particularly in spaces like collegiate football tailgates in the US. Football tailgates are sites where waste is produced; for instance, the University of Missouri US estimates that 47.3 metric tons (mt) of waste was generated, with the majority (29.6 mt) of waste coming from off-site food preparation and food-related activities, of this over 96% was pre-consumer and

CONTACT Noleen R. Chikowore n.r.chikowore@leeds.ac.uk Sustainability Research Institute, School of Earth and Environment, University of Leeds, Leeds, UK; Department of Community Sustainability, Michigan State University, 480 Wilson Road, Room 131, East Lansing, MI 48824, USA

un-sold food waste (Costello, McGarvey, and Birisci 2017).

With bottle bill laws in parts of the global North, including Canada and some states in the US, collecting returnable aluminium cans and bottles has become a source of income for vulnerable populations (Ashenmiller 2009; Gowan 2010; Gutberlet et al. 2009; Porter 2015). Tailgates lead to the high-volume generation of recycled and non-recycled materials, and the presence of informal recyclers at football tailgates, where the bottle bill law is in effect, provides opportunities for tailgates to be more environmentally friendly and integrate informal recycling practices.

The informal recyclers in North America, known to each other as binners (Gutberlet et al. 2009) or canners (Chikowore and Kerr, 2020), are often perceived by the public as a nuisance and even as criminals, because of their association with waste (Downs and Medina 2000; Tremblay 2007). They tend to be stigmatized and discriminated against, sometimes facing harassment from the public, hence feeling unwelcome (Porter 2015), and socially and economically excluded (Gutberlet et al. 2009). It has been argued that these multiple identities increase informal recyclers' vulnerabilities to being treated with prejudice by the public (Gutberlet and Jayme 2010). Hence, they continuously suffer from social and economic exclusion, affecting how they engage in their activities in certain places or contexts (Coletto and Bisschop 2017).

Informal recycling practices reflect cultural norms and values surrounding how societies interact with waste. Such that Liboiron and Lepawsky (2022) challenge the traditional narratives of waste to highlight how the wider social, political, economic, and cultural material systems shape waste and wasting. Some studies indicate that informal recycling is an entirely socially appropriate activity under certain circumstances or in certain places, depending on the community support for this livelihood activity (Porter 2015; Tremblay, Gutberlet, and Peredo 2010). In addition, Massey (2013) asserts that individuals' identities are the construction of place, class, and other identities like race and gender, and Valentine (2007) highlights that social identity categories must be understood based on how they relate to specific places. However, no studies have explored how social identities, such as gender, race, and class, intersect to shape informal recyclers' geographies and how informal recyclers actively navigate space in their everyday lives. Considering this, I use intersectionality as an analytical lens as it recognizes the intricate interactions between institutions and social identities such as race, gender, class, and citizenship, which shape one's experiences (Davis 2008; Crenshaw 1994).

In this article, I investigate how gender, race, and class intersect to shape how informal recyclers engage in their livelihood activity, focusing on football tailgates as emblematic sites of consumption and discard. Secondly, I explore how the identity of place influences informal recyclers to collect recyclables for income at football tailgates but not in other places. I shed light on the opportunities and constraints which recyclers experience in navigating socio-environmental landscapes. Specifically, I address:

1. How informal recyclers' self-perceived and externally perceived social identities intersect to influence their livelihood activity at football tailgates and elsewhere,
2. How the identity of place determines whether informal recycling livelihoods are socially acceptable or unacceptable, and
3. How social capital enables informal recyclers to engage in collecting cans and bottles at football tailgates?

Conceptual framework: Intersectionality, role of place and social capital

In this article, I use the connection of three concepts i.e., intersectionality, role of place and social capital, to explore how informal recycling activities are perceived in specific place-based contexts, as shown in Figure 1. Firstly, intersectionality is defined as the multiple dimensions of how race, class, gender, and other social identities intersect in marginalized subjects' lived experiences (Carastathis 2013; Crenshaw 1994) in any place.

Despite the growing literature on gender and informal recyclers' livelihoods such (Muller and Scheinberg 2003; Ogando, Roever, and Rogan 2017) little has been done to explore how gender dynamics intersect with axes of social differences and how the gendered division of labour influences the activities in which women and men informal recyclers are involved (Dias and Ogando 2015).

Secondly, the place is interpreted as a hybrid that connects social, political, financial, and cultural networks over time and space (Massey 2013). Examining the hybrid conceptualisation of place will help us understand how and why informal recycling activities are socially acceptable or unacceptable. Lastly, social capital is defined as a structural phenomenon (relational/social networks) and a cultural phenomenon (trust and social norms) (Putnam 1994). Several studies

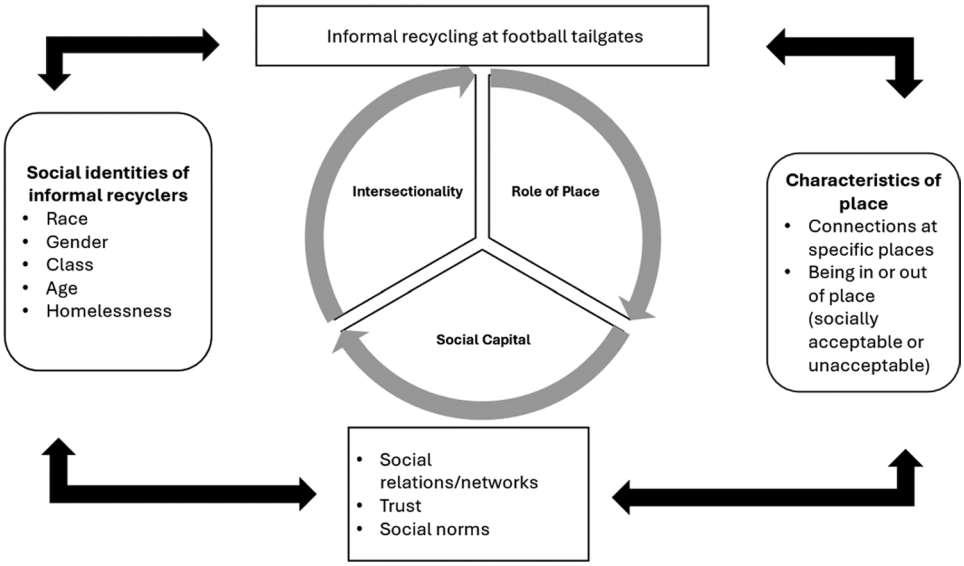

Figure 1. Conceptual framework role of place, social capital, and intersectionality.

have indicated that relational solid networks in informal recycling result in successful outcomes (Gutberlet et al. 2009; Ogando, Roever, and Rogan 2017; Parizeau 2015; Prasad et al. 2012). However, relational networks have been critiqued for paying little attention to structural inequalities in class, gender, ethnicity, sexuality, and ability (Tzanakis 2013). In this article, I seek to explore how social identities of informal recyclers intersect with social capital and how these influence their interactions at football tailgates and other places.

Intersectionality of informal recyclers' social identities

Irrespective of their geographic location across the globe (Wilson, Velis, and Cheeseman 2006), informal recyclers are from vulnerable social groups characterized by social identities, such as gender, age (Coletto and Bisschop 2017), caste and gender in India (Devrim 2024), religious minorities in Egypt (Fahmi and Sutton 2010), immigrants and homelessness in California (Ashenmiller 2009; Gowan 2010). It has been argued that these multiple identities increase their vulnerability to being treated with prejudice by the public (Gutberlet and Jayme 2010). Hence, they continuously suffer from social and economic exclusion, affecting how they engage in their activities in certain places or contexts (Coletto and Bisschop 2017).

In addition, due to their multiple identities, informal recyclers can be perceived as either victims of environmental injustice, socio-economic challenges, or perpetrators of 'disorder' in the city. For example, they often work under harsh conditions with little to no legal protection, making them vulnerable to exploitation by middlemen and waste management companies (Simpson et al. 2024). In contrast, informal recyclers are often perceived as perpetrators of 'disorder' in cities because their activities are seen to be incompatible with modern cities, making them vulnerable to harassment by local authorities and others in society (Gutberlet et al. 2009). These dual perceptions highlight the complex socio-economic dynamics surrounding informal recycling as a livelihood, but there is limited evidence on how informal recyclers' self- or externally perceived intersecting social identities influence their livelihood activity.

Some scholars have examined how the social identities of informal recyclers or waste workers intersect with managing waste activities. Fredericks (2018), in gender and waste work, explores how women waste workers in Dakar navigate gendered labour dynamics and contribute to the city's waste management system. This research highlights the intersection of gender and labour in the context of waste. Others have explored how the gendered nature of sustainable consumption intersects with class, race, caste, and coloniality, particularly when care work is outsourced to low-paid domestic workers. For instance, Anantharaman (2014) highlights that recycling processes rely heavily on the under-recognised labour of domestic workers and low-income waste pickers in middle-class Banglore and in Indian case studies such as Pastor et al. (2024) (highlight that such workers are often from marginalized communities such as lowest caste or Dalits and in San Fransciso, Gowan (2009; 2010) indicate that most informal recycles are homeless.

Hence, Acheson et al. (2024) argues that such invisible labour in mainstream waste reduction approaches

raises concerns around social equity and justice, specifically informal waste workers in the circular economy (Labra Cataldo et al. 2024). Therefore, an intersectionality lens connects subjective experiences of oppression and inequality in everyday life and helps understand the influence of social structures and processes that entrench inequality (Walby et al. 2012) in informal recycling livelihood experiences. This lens illuminates the complex and interconnected nature of social identities and oppressions, leading to a more comprehensive and just understanding of waste management practices in different contexts.

A few studies, such as that by Devrim (2024) provide useful insights into how informal recyclers' multiple social identities negatively influence their livelihood activities, but there is limited evidence on how informal recyclers' self- or externally perceived social identities intersect to influence their livelihood activity. I explore this here, using recycling at football tailgates as an example.

Role of place in informal recycling activities

Informal recyclers' social identities are a critical lens for exploring recycling activities but understanding the role of the place where informal recycling activities occur is also essential. Due to the nature of informal recycling activities, recyclers may feel out of place or in place depending on where they practice their activity (Porter 2015). Porter further states that the place in which informal recycling activities occur "produces and is produced" by attributes that differ from one place to another, depending on the extent to which activities are interpreted as being in place, and their work is socially acceptable.

Ashenmiller (2009) classified informal recyclers into three categories according to the location from which they collect most of their returnable bottles and cans: the professional recycler collects recyclables from public places, households, and garbage; a workplace recycler retains recyclables obtained from their workplace; and household recyclers collect recyclable personal household material. For instance, Tremblay, Gutberlet, and Peredo (2010), highlights that informal recyclers in Vancouver have designated routes known as traplines attached to specific places where they collect recyclables. These locations where informal recyclers collect recyclables may demonstrate that the community accepts informal recycling activities.

However, most studies in North American settings have shown that informal recyclers feel unwelcome, socially excluded, and stigmatised (Gowan 2010; Gutberlet et al. 2009; Taylor 2008; Tremblay, Gutberlet, and Peredo 2010). This makes it difficult for them to engage in livelihood activities in certain places and perpetuates their marginalization. However, these studies did not explore how elements of social capital, such as networks, relationships, and social norms in specific places, enable or disenable informal recyclers to engage in their livelihood productively. Onyx and Bullen (2000) have argued that participation in networks, trust, reciprocity, and social norms are key elements of social capital. The capacity and ability to participate in a network of relationships of individuals and groups is critical in any place-based study. For instance, informal recyclers in San Francisco are welcomed in residents' private spaces, which gives recyclers a sense of being "good citizens" and not "feared outcasts" (Gowan 2010). In addition, they treated their transaction with residents or business suppliers of recyclables as an exchange, with each one appreciating the role of the other. Such social support, recognition, and cooperation are needed for informal recyclers to thrive in their livelihood.

Methodology

Study area

This study took place in the State of Michigan, which is in the Great Lakes region of the Upper Midwestern United States, where the Bottle Bill law was implemented in 1978 to decrease litter and encourage resource conservation through a monetary incentive to reuse and recycle. The State of Michigan has a 10c deposit on aluminium cans and bottles, one of the highest in the US. The study was conducted primarily during the football tailgates from September to November at Michigan State University during the 2019 season. Football tailgates are an American cultural event where football fans party before and during the football game and can publicly drink alcoholic beverages, generating many discarded empty cans and bottles. These tailgates create an opportunity to earn income for the vulnerable local populations by collecting returnable cans and bottles for the 10-cent deposit.

Direct observations and interviews

I used direct observation to document the interactions of informal recyclers and tailgaters at football tailgates to validate the interview responses. Informal recyclers and tailgaters were recruited for the interviews. I used a maximum variation (heterogeneity) sampling method (Patton 2015) to recruit informal recyclers who

differed by race, gender, and age group. The informal recyclers were recruited through a recruitment flyer during the football games and at redemption centres at local grocery stores. Twenty-eight informal recyclers participated in the in-person interviews to understand their lived experiences on how their social identities influence their livelihood and explore how and why informal recyclers' activities are socially acceptable or unacceptable in specific places. Semi-structured interviews were used to develop a rich description of their lived experiences (Creswell and Poth 2016).

Table 1 provides the demographic data of informal recyclers who participated in the interviews. The inclusion criteria for recruiting participants were that one must be over 18 years of age and must be collecting cans and bottles at MSU football tailgates. During the fieldwork, the criteria were updated to recruit participants with longer experience in collecting cans and bottles as a source of income.

Tailgaters were recruited online from the Michigan State University online participant database. I administered a screening survey to decide suitability for inclusion in the study based on the frequency of football tailgate attendance. Semi-structured interviews ($n = 9$) with tailgaters were conducted via phone and Zoom video calls, and no socio-economic data was collected due to COVID-19 restrictions in March 2020. The interviews for tailgaters focused on how they perceive informal recyclers and determine whether their treatment of informal recyclers is similar or different in other settings. It was impossible to get a diverse sample of tailgaters based on their years of tailgating experience and whether they have close interactions with informal recyclers. Recruiting experienced tailgaters could have helped to get "thick descriptions" of the strength of social ties between experienced informal recyclers and such tailgaters.

An in-depth interview protocol was designed for informal recyclers and tailgaters to probe for detail and ensure all research questions were answered (Patton 2015). All the interviews were audio-recorded with participants' permission. Informal recyclers and tailgaters were compensated for their time participating in the interviews, which lasted 45 minutes to 1 hour.

The recorded interviews were transcribed within 24 hours using the online transcription software Otter.ai. When I reached data saturation, I stopped the data collection process. The transcripts were manually verified, and necessary edits were made before exporting transcripts as Microsoft Word documents into MAXQDA2020, a qualitative analysis software.

Table 1. Profiles of interviewees ($n = 28$).

Category	Profiles of informal recyclers interviewed
Gender	Males: 17
	Females: 11
Race	African American (AA): 17
	Caucasian American (CA): 11
Age	Mean age: 43
	Mode age: 51
	Range: 22–65 years
Income per game	Mean: $83
	Min-Max range: $20–$200
Years collecting cans	Mean: 7 years
	Min-Max years: less than 1 year–20 years

Data analysis

Thematic data analysis was used to identify, analyse, and report themes that emerged from the qualitative data (Braun and Clarke 2006). The coding framework was developed based on the conceptual framework and preliminary reviews of the transcripts. I revised the framework as coding progressed. I organized and refined recurring themes related to the research questions and the conceptual framework into the draft analysis through an iterative process. The author's doctoral supervisor provided feedback on the data analysis and interpretation of results. In this study, trustworthiness was established through a purposive sampling of the participants, an audit trail of memos, field notes, sharing a direct verbatim quotation from the participants to provide a comprehensive explanation of the results.

Positionality statement

As a Global South woman who engage in discard studies and informality, my positionality embodies a perspective shaped by my racial identity, gender, class, and international student status at that time, to explore informality in the Global North. My work challenges the normative assumptions embedded within recycling in the Global North. Too often, these practices are framed solely through the lens of economic efficiency, innovation, and efficient recycling practices, ignoring social and economic inclusion practices that can improve recycling practices in other contexts. I explore informal recycling through the lens of Global South perspectives on the Global North to enhance recycling efforts, promote sustainability, and address social and environmental justice issues in the Global North.

Findings

I present and discuss the findings from the observations and semi-structured interviews on how the

intersectionality of informal recyclers' social identities shape how they engage in their livelihood activity and explore how the identity of place influences informal recyclers to collect recyclables for income at football tailgates and not at other places. The intersection of social identities of class, age, race, and gender and elements of social capital (i.e., relational networks, social trust, norms, and reciprocity) influence (un) successful informal recycling activities. I organise the findings into three themes detailing (1) the self-perceived and externally perceived social identities of informal recyclers, (2) the role of place and informal recyclers' geographies, and (3) the influence of social capital on their livelihood activities to demonstrate how informal recyclers' social identities shape how they engage in their livelihood activity and explore how the identity of place influences them to collect recyclables for income at football tailgates and not at other places. Findings for participants are reported based on their race and gender (AA) for African Americans and (CA) for Caucasian Americans.

Self-perceived and externally perceived social identities of informal recyclers

Self-perceived social identities of informal recyclers

Firstly, all informal recyclers at the on-campus football tailgate identify as of low socioeconomic status and collect cans and bottles to earn an income, except for one male can collector who is a student. In addition, half of the participants indicated that they are unemployed and rely on disability or social security allowance, which is not adequate to meet their needs. Others expressed that they lived in a shelter, and one male participant was homeless. One male AA informal recycler said, "I am homeless right now, I live in a shelter. I don't have any money. It's like I don't have income. For me to do this, it's helping me earn honest money, legal money." However, some male informal recyclers perceive themselves as hardworking individuals trying to earn or supplement their income.

Secondly, a few informal recyclers are self-conscious of their age, influencing how they collect cans and bottles at football tailgates. One older female informal recycler revealed that tailgaters support their activities by bringing cans and bottles to them because of their age. In comparison, one young CA male student who collects cans indicated that they felt uncomfortable collecting cans and bottles in the student tailgating section and prefers to collect cans in the sections where there are older tailgaters. They said if "there's a bunch of young people my age or younger. I'm going to avoid that area. Because it's weird … I feel awkward if I am to meet my classmates, and someone says, I'm in class with you."

Thirdly, while can collection is male-dominated, several females engaged in this activity at on-campus football tailgates. Most females indicated they always have a male partner for companionship and security, as some do not feel safe except for one female who has been collecting cans and bottles for more than 20 years without a companion.

Although most informal recyclers highlighted that they had not experienced discrimination or marginalization at football tailgates, a few have been vulnerable to ill-treatment from tailgaters. Two African American women revealed that their racial identity affects how they are treated at football tailgates. Both women once experienced racially discriminatory language from tailgaters at one of the football tailgates. However, most participants indicated they had not been mistreated because of their race at football tailgates and a few heard of incidents where informal recyclers are mistreated at football tailgates.

External perceived social identities of informal recyclers

Participants were asked how tailgaters perceive them, and some indicated that they are perceived as 'low-income people', 'homeless', 'violent' or 'drug addicts. One AA female informal recycler said, "I think they (tailgaters) think we're losers, and honestly, I think that's how they perceive people picking up cans out there… you can't just judge people from that." Similarly, most tailgaters perceived informal recyclers as homeless and needing money.

Due to the external perceptions of tailgaters, all informal recyclers revealed they were afraid, nervous, shy, and ashamed the first time they engaged in can collection at on-campus football tailgates. All participants indicated that after their first can collection experience during on-campus football tailgating, they became more comfortable as they realised that their activity was socially appropriate in the tailgating context. At first, the informal recyclers felt out of place at football tailgates. One AA male informal recycler said,

> At first, I was very intimidated by it …I almost felt like I was degrading myself to reach into the garbage to pull cans out or walk around with a trash bag… The longer I was doing it, the stigma wore off, I didn't even worry about it anymore…I stopped worrying about what this person might think of me, and I just concentrated like I am doing a job.

Role of place and informal recycling geographies

The findings below highlight the experiences of informal recyclers on and off campus and how tailgaters consider collecting cans and bottles for income to be in place or out of place.

Informal recycling experiences in on-campus football tailgates

A high volume of returnable material characterises on-campus football tailgates, and the MSU on-campus football tailgates generate abundant cans and bottles, which offers an opportunity to collect returnables for income. A few informal recyclers indicated that the cans and bottles generated and lying around during campus football tailgates allow them to easily access the returnables and earn a legitimate source of income. Tailgaters also raise these sentiments; hence, their presence is acceptable.

Most informal recyclers were at first hesitant and afraid of how they would be treated at football tailgates. However, the informal recyclers were surprised that tailgaters and the university accepted their activities and are happy with the positive treatment they receive at football tailgates because it is a welcoming and friendly environment as shown in Figure 2.

Most indicated that they receive recycling bags that the informal recyclers use, and the tailgaters help them with easy access to cans and bottles, and sometimes they are offered food. An AA male informal recycler said, "It made me feel good, and it made me feel accepted… they accepted me as like part of their community…it has just been cool…" Most tailgaters reported that informal recyclers help them recycle recyclables which they will not recycle during tailgate parties.

Informal recycling experiences in off-campus settings

Most tailgaters highlighted that informal recycling activities are more in place when practised at football tailgates because different people collect cans in such places, unlike in other places. However, most of the tailgaters had mixed responses on how they felt about informal recyclers' potential presence in other settings outside campus football tailgates. A few tailgaters who live in neighbourhoods far from campus felt that it would be weird, unusual, intrusive, and out of place to see informal recyclers collecting cans in their spaces. In addition, they would feel unsafe and uncomfortable when there are informal recyclers in their neighbourhood as the presence of informal recyclers will affect the ambience of their neighbourhood.

However, all tailgaters reported that people collecting cans and bottles for fundraising purposes in their neighbourhoods are more in place than informal recyclers who collect to earn income. Therefore, most tailgaters feel comfortable having people collecting cans for fundraising purposes, as in some cases, they are notified of the collection drive.

More than half of the tailgaters interviewed have lived or live in a student neighbourhood near campus and have a distinct experience with people collecting cans and bottles in their neighbourhood and had no concerns with the presence of informal recyclers in

Figure 2. An informal recycler at a football tailgate on 28 September 2019.

their neighbourhood. They reported that apartments off-campus have students who hold parties, and it is common and acceptable to see informal recyclers collecting cans at these places. A tailgater said, "So normally it doesn't bother us really because they just walk up and down the street, and that's about it."

All informal recyclers except for one reported that they do not collect cans and bottles in other settings as it is inappropriate. The informal recyclers feel that their activity would be considered out of place as they would invade people's spaces; hence, they fear victimization and feel insecure about doing so. Most tailgaters felt that football tailgates are safer spaces for informal recyclers to engage in their livelihood activity than any other place.

Impact of social capital and social interactions. The interviews demonstrated that elements of social capital, i.e., social norms, reciprocity, and trust, exist among some informal recyclers and a few tailgaters at football tailgates. However, these elements of social capital do not extend beyond on-campus football tailgates.

The interviews revealed that there are minimal interactions between informal recyclers and tailgaters at football tailgates, due to a few factors. Most informal recyclers reported that they avoid any form of interaction with tailgaters. The informal recyclers revealed that they try to remain focused on collecting bottles and cans at football tailgates and are uncertain of tailgaters' attitudes and behaviour towards them. A few informal recyclers set up barriers to avoid interactions with tailgaters. One CA female informal recycler said, "I'm just really strictly business…I keep my earbuds in my ears and keep my hood and then my shades… I'm not here to socialize; I'm focused on what I am trying to do."

Furthermore, a few informal recyclers pointed out that they are conscious of the stereotyping and stigmatization associated with collecting cans and bottles for income; hence, they avoid interacting with tailgaters. These few informal recyclers are determined to engage in their livelihood activity despite their internal struggles of stigma as they need income. These informal recyclers negotiate how to co-exist with tailgaters by pretending that the tailgaters are not present as they engage in their livelihood activity. A CA male informal recycler who collects cans with his adult son revealed,

> (A)t first, I was very intimidated by it (silent). I almost felt like I was degrading myself to reach in the garbage to pull cans out or walking around with a trash bag… The longer I was doing it, that stigma wore off, I didn't even worry about it anymore…I stopped worrying about what this person might think of me, and I just concentrate like am doing a job.

On the other hand, the interviews and observations revealed three common interactions between tailgaters and informal recyclers. A few informal recyclers indicated minimal interactions with a small number of tailgaters through casual conversations. Some of the few experienced informal recyclers with informal recycling experience of over 15 years indicated that they interact with a few tailgaters that they have come to know over the years. These few informal recyclers are sometimes invited to join a few tailgating parties, and tailgaters reserve cans for later collection. From my observations and the informal recyclers' experiences, there are rare scenarios where a few experienced tailgaters are sociable with informal recyclers. However, such tailgaters were not represented in our sample size.

Social norms between informal recyclers and tailgaters

As informal recyclers and tailgaters have interacted, they have self-organized an informal understanding that governs how informal recyclers access cans from tailgaters and how tailgaters give informal recyclers access to their cans at football tailgates. The informal recyclers highlighted the socially acceptable conduct that enables them to collect returnables at football tailgates. The tailgaters reported their practices of making cans available to informal recyclers at football tailgates. All these social norms are exclusive to football tailgates and are only considered appropriate in that setting.

In the interviews, the informal recyclers highlighted how they socially conduct themselves, including observing tailgaters' body language and avoiding invasion of privacy at football tailgates. They also revealed the diverse ways to access cans at football tailgates, including picking up cans on the ground and in trash cans, getting cans, and asking for cans from tailgaters. All informal recyclers reported picking up cans from the ground as tailgaters tend to toss cans on the sidewalk or open spaces for informal recyclers to easily access aluminium cans. An AA male informal recycler said, "They throw them around, and I pick them up. Maybe they got tired of seeing people sticking their heads in the garbage cans. So, they got to throw them around."

Again, most informal recyclers revealed that tailgaters tend to dispose of their returnable cans and bottles close to trash cans so that informal recyclers have easy access to cans. However, a few informal recyclers indicated that they also access cans from

trash cans placed around tailgating spaces. Another CA male informal recycler said, "The reason I look in the garbage cans is… I find a lot of them in the garbage cans, too, as people throw them away."

A few informal recyclers indicated that tailgaters give them cans, or the tailgaters keep bags of cans for these few informal recyclers to collect later. One AA female informal recycler revealed, "Now people automatically just come up to you and put their cans in your bag, and some people will have a bag set aside. So, it seems like they're more like used to seeing people out there and doing that."

Furthermore, a few informal recyclers reported that they ask tailgaters for any cans available for pick up from their tailgating space. An AA male informal recycler said, "I have this respect thing where I need to ask people their permission to pick up their cans, and they put them out there." Another CA male said, "I don't just assume I can walk in and start picking up, I always ask."

Lastly, a few informal recyclers take into consideration tailgaters' body language and avoid an invasion of the privacy of tailgaters when collecting cans at football tailgates. Keeping eye contact and self-awareness of tailgaters' body language helps a few informal recyclers determine which tailgaters to approach for cans. A few informal recyclers pointed out that they usually wait to be invited by tailgaters. "I don't approach their circle. I don't want to make them feel uncomfortable… I'll look for cans on the ground. And once they see me doing that, they tell me if they have any cans for me," one AA female informal recycler reported.

The tailgaters I interviewed pointed out norms on how informal recyclers get access to cans at football tailgates. Different tailgaters revealed the diverse ways in which informal recyclers get access to their cans, which included picking up cans, retrieving cans from the trash, and asking for cans. Most tailgaters reported that there are informal rules that allow tailgaters to give their cans to informal recyclers. Another AA female informal recycler said, "So there's almost like this unsaid understanding that people are allowed to take the cans and bottles…I think it's just more of like a mutual understanding."

Most tailgaters reported that they give access to their cans by throwing them on the sidewalk or ground for informal recyclers to pick up. They also randomly hand over empty cans to informal recyclers. One male tailgater reported, "I will toss them to the side… normally they pick up cans or bottles from like the public areas like sidewalks…."

Reciprocity

The informal recyclers and tailgaters revealed that reciprocity is also common at campus football tailgates. Informal recyclers collecting cans at football tailgates indicated that while they are supported by tailgaters to earn an income, they are also helping to clean up tailgating parties on behalf of the university and the tailgaters. An AA male informal recycler said, "Just for me to be out here and participate in informal recycling. I'm helping. And I'm getting helped at the same time. You know, killing two birds with one stone."

In addition, tailgaters perceive informal recyclers as environmental stewards, and they value their presence as they help tailgaters recycle the cans they generate. Most tailgaters reported that informal recyclers at campus football tailgates increase recycling rates of bottles and cans that otherwise may not be recycled at football tailgates. A female tailgater said,

> There are hundreds of dollars in returnables at football tailgates. These people pick up most of the cans that would have gone to waste. So, it would be a shame if that money went to waste if it were just thrown away, and these people fill in the gap.

Lastly, a few tailgaters reported that it is convenient for tailgaters to have people collecting cans and bottles at football tailgates as they do not have to manage the recyclables they generate. A male tailgater said, "You don't have to put the cans in your car…it's a convenient thing… you never take your cans back home."

Trust

From the interviews, both informal recyclers and tailgaters highlight a lack of trust between them. This has made it socially inappropriate for informal recyclers to collect cans elsewhere other than tailgates. Most tailgaters who live in neighbourhoods far from campus expressed that they do not trust what else informal recyclers might do if they collect cans in their neighbourhood, such as access to identity personal information. Most informal recyclers revealed that they do not collect cans outside football tailgates as they feel that people in other places may be hostile to their presence. A few informal recyclers collecting cans for at least ten years at football tailgates revealed that they had built some form of trust, which has helped them access cans at tailgates.

Discussion and conclusion

Results showed that the intersectionality of race, gender and class influence informal recyclers' livelihood activities at football tailgates and elsewhere. However, the findings reveal that there are no gender, racial or age differences in informal recyclers' experiences at football tailgates. The use of methods such as gender-based focus group discussions would allow participants to share their unique experiences engagement and more honest, open discussions (Leavy 2007). Informal recyclers at football tailgates are self-conscious of their self-perceived and externally perceived social identity based on low-income status and are stereotyped as homeless. Unlike in previous studies, in which informal recyclers were ill-treated because of their self and externally perceived social status (Gutberlet et al. 2009; Nzeadibe and Ochege 2018; Uddin et al. 2020), the situation is different at football tailgates.

This study confirms that stigma results from being placed in a social condition and influences how one is treated (Yang et al. 2007). Hence, the stigma associated with informal recyclers' low social status leads to a lack of trust, constraining informal recyclers from collecting cans beyond the football tailgating context. As with other studies (Gutberlet and Jayme 2010), people who collect cans have demonstrated that they are self-conscious of the stereotyping associated with their work, which increases their vulnerability in some contexts.

However, football tailgates are welcoming and friendly places for people who collect aluminium cans for income. Whereas collecting outside football tailgates is not acceptable, informal recyclers fear victimization and harassment and tailgaters consider it out of place as it disturbs the ambience of their neighbourhood. It is unusual, and it is considered out of place for informal recyclers to collect cans around neighbourhoods beyond where students live. These findings are consistent with most studies where informal recycling is an entirely socially (in) appropriate activity under certain circumstances or in certain places, depending on the community support offered in specific places for this livelihood activity (Parizeau 2015; Porter 2015; Tremblay, Gutberlet, and Peredo 2010).

Furthermore, the findings indicate that the identity of place influences informal recyclers to collect recyclables for income in specific places and exclude other places. However, other studies report no restrictions on where informal recyclers can collect recyclables, such as in St. Johns (Newfoundland) and parts of San Francisco (Porter 2015; Gowan 2010). Informal recyclers in Lansing cannot easily collect cans beyond the tailgating setting. Hence, there is a need for a nuanced understanding of how context-specific factors of certain spaces (dis) enable informal recycling livelihoods.

The findings demonstrate weak social ties and interactions between tailgaters and informal recyclers, but these do not limit informal recyclers' access to cans at campus tailgates. This contradicts other findings where weak social ties constrain informal recyclers' livelihood activities (Méndez-Lemus and Vieyra 2017; Nzeadibe and Ochege 2018). In addition, the results demonstrate that informal recyclers and tailgaters have social norms that have made collecting cans for income a socially appropriate activity at football tailgates. The informal recyclers observe tailgaters' body language and avoid invading their privacy to ensure their livelihood activity is in place. Tailgaters tend to make it easy for informal recyclers to access the cans they generate by throwing the cans in open spaces that informal recyclers can easily access; some also give out their cans or keep bags of cans for informal recyclers they have known over the years. Such social norms have enabled informal recyclers to engage successfully in informal recycling to supplement their income.

I conclude that football tailgates and other off-campus locations are constructed of diverse social and spatial characteristics (Massey 2013), shaping how informal recyclers' livelihood activities are in or out of place. It contributes to the literature suggesting that the role of place can be used to analyse sustainable recycling activities that respond to the opportunities and constraints found in different places (Porter 2015). Understanding how informal recyclers' social identities intersect and influence their livelihood activity is essential in discarding studies to develop more inclusive and context-specific waste management policies and interventions such as formalizing and integrating their activities into the official waste management systems at football tailgates and other places. In addition, recognising the diverse identities and experiences within the informal recycling sector challenges the stereotyping of informal recyclers and fosters solidarity among marginalized communities.

Future studies may explore how place-based contexts create complex and multiple lived experiences and how they lead to informal recyclers' vulnerability or resilience. Such studies may help to understand how different forms of social identities of informal recyclers are negotiated and performed within specific contexts, leading to particular outcomes. In addition, participatory methodologies may offer comprehensive

findings and reflect the diverse experiences and perspectives of all stakeholders involved in informal recycling. It helps capture nuanced insights that this study has not covered. Understanding the nexus between intersectionality of informal recyclers' social identities, consumption and waste generation in some places, and social capital contributes to more comprehensive and equitable approaches to waste management and social change.

Acknowledgements

I thank the informal recyclers and tailgaters who participated in this study, and staff of the MSU Recycling Center and the Infrastructural Planning and Facilities for their suggestions and guidance. In addition, I would also like to thank CSUS graduate students Gelica Forde, Angela Manjichi, Shubhechchha Sharma, Jessica Brunacini, and Marie Schaefer, and CSUS mentors Professor John Kerr and Dr Kimberly Chung, who helped with direct observations and participant recruitment. I thank Sonny Punungwe and the reviewers for their constructive feedback.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This work was supported by Michigan State University's Gender Justice and Environmental Change Research Dissertation Fellowship and the Department of Community Sustainability Graduate Office Fellowship. The study protocol was approved by the Michigan State University Institutional Review Board (IRB# 00002994).

ORCID

Noleen R. Chikowore http://orcid.org/0000-0002-0224-2260

References

Acheson, C., T. Hargreaves, H. Pallet, and G. Seyfang. 2024. "Exploring Intersectional Approaches to Waste Through Grassroots Innovations in the UK." *Local Environment* 29 (10): 1287–1306. https://doi.org/10.1080/13549839.2024.2368523.

Anantharaman, Manisha. 2014. "Networked Ecological Citizenship, the New Middle Classes and the Provisioning of Sustainable Waste Management in Bangalore, India." *Journal of Cleaner Production* 63: 173–183. 10.1016/j.jclepro.2013.08.041.

Ashenmiller, B. 2009. "Cash Recycling, Waste Disposal Costs, and the Incomes of the Working Poor: Evidence from California." *Land Economics* 85 (3): 539–551. https://doi.org/10.3368/le.85.3.539.

Braun, V., and V. Clarke. 2006. "Using Thematic Analysis in Psychology." *Qualitative Research in Psychology* 3 (2): 77–101. https://doi.org/10.1191/1478088706qp063oa.

Carastathis, A. 2013. "Identity Categories as Potential Coalitions." *Signs: Journal of Women in Culture and Society* 38 (4): 941–965. https://doi.org/10.1086/669573.

Chikowore, Noleen R, and John M Kerr. 2020. "A Qualitative Inquiry into Collecting Recyclable Cans and Bottles as a Livelihood Activity at Football Tailgates in the United States." *Sustainability* 12 (14): 5659 10.3390/su12145659.

Coletto, D., and L. Bisschop. 2017. "Waste Pickers in the Informal Economy of the Global South: Included or Excluded?" *International Journal of Sociology and Social Policy* 37 (5/6): 280–294. https://doi.org/10.1108/IJSSP-01-2016-0006.

Costello, C., R. McGarvey, and E. Birisci. 2017. "Achieving Sustainability Beyond Zero Waste: A Case Study from a College Football Stadium." *Sustainability* 9 (7): 1236. https://doi.org/10.3390/su9071236.

Crenshaw, K. W. 1994. "Mapping the Margins: Intersectionality, Identity Politics, and Violence Against Women of Color." In *The Public Nature of Private Violence: Women and the Discovery of Abuse*, edited by Martha Albertson Fineman, 93–118. London: Routledge.

Creswell, J. W, and Poth, C. N. *Qualitative inquiry and research design: Choosing among five approaches.*,Thousand Oaks, CA: Sage Publications, 2016.

Davis, K. 2008. "Intersectionality as Buzzword: A Sociology of Science Perspective on What Makes a Feminist Theory Successful." *Feminist Theory* 9 (1): 67–85. https://doi.org/10.1177/1464700108086364.

Devrim, E. 2024. "Caste, Gender, and Environmental Injustices in India's Urban Peripheries: Intersectional Inequalities, Decolonial Praxis." *Environments of Inequality: Crises, Conflicts, Comparisons*, Bielefeld, Germany: Kipu-Verlag,187–208

Dias, S. M, and A. C. Ogando. 2015. "Rethinking Gender and Waste: exploratory Findings from Participatory Action Research in Brazil." *Work Organisation, Labour and Globalisation* 9 (2): 51–63. https://doi.org/10.13169/workorgalaboglob.9.2.0051.

Downs, M, and M. Medina. 2000. "A Short History of Scavenging." *Comparative Civilizations Review* 42 (42): Article 4, https://scholarsarchive.byu.edu/ccr/vol42/iss42/4 .

Fahmi, W., and K. Sutton. 2010. "Cairo's Contested Garbage: Sustainable Solid Waste Management and the Zabaleen's Right to the City." *Sustainability* 2 (6): 1765–1783. https://doi.org/10.3390/su2061765.

Fredericks, R. *Garbage citizenship: Vital infrastructures of labor in Dakar, Senegal*, Duke University Press., Durham, NC, 2018.

Gowan, T. 2009. "New Hobos or Neo-Romantic Fantasy? Urban Ethnography beyond the Neoliberal Disconnect." *Qualitative Sociology* 32 (3) : 231–257. https://doi.org/10.1007/s11133-009-9133-5.

Gowan, T. 2010. *Hobos, Hustlers, and Backsliders: Homeless in San Francisco*. Minneapolis: U of Minnesota Press.

Gutberlet, J., and B. D. O. Jayme. 2010. "The Story of My Face: How Environmental Stewards Perceive Stigmatization (Re) Produced by Discourse." *Sustainability* 2 (11): 3339–3353. https://doi.org/10.3390/su2113339.

Gutberlet, Jutta, C. Tremblay, E. Taylor, and N. Divakarannair. 2009. "Who Are Our Informal Recyclers? An Inquiry to Uncover Crisis and Potential in Victoria, Canada." *Local Environment* 14 (8): 733–747. https://doi.org/10.1080/13549830903096478.

Juárez Pastor, Lidia, Vrishali Subramanian, Stefano Cucurachi, and Amineh Ghorbani. 2024. "Caste, Mistrust and Municipal Inaction: The Interwoven Barriers for the Integration of Waste Pickers in India." *Journal of Environmental Management* 356: 120513 10.1016/j.jenvman.2024.120513. PMC: 38471322

Labra Cataldo, Nicolás, Muyiwa Oyinlola, Samip Sigdel, Dori Nguyen, and Alejandro Gallego-Schmid. 2024. "Waste Management in Nepal: Characterization and Challenges to Promote a Circular Economy." *Circular Economy and Sustainability* 4 (1): 439–457. 10.1007/s43615-023-00283-0.

Lau, J. C. H. 2023. "Towards a Care Perspective on Waste: A New Direction in Discard Studies." *Environment and Planning C: Politics and Space* 41 (8): 1592–1608.

Leavy, P. L. 2007. "The Practice of Feminist Oral History and Focus Group Interviews." *Feminist Research Practice., pp.* 149–186. Thousand Oaks, CA: SAGE Publications, Inc

Liboiron, M., and J. Lepawsky. 2022. *Discard Studies: Wasting, Systems, and Power*. MIT Press. Cambridge, Massachusetts.

Massey, D. B. 2013. *Space, Place, and Gender*. Cambridge: Polity Press.

Méndez-Lemus, Y., and A. Vieyra. 2017. "How Social Capital Enables or Restricts the Livelihoods of Poor Peri-Urban Farmers in Mexico." *Development in Practice* 27 (3): 301–315. https://doi.org/10.1080/09614524.2017.1296109.

Muller, M., and A. Scheinberg. 2003. "Gender-Linked Livelihoods from Modernising the Waste Management and Recycling Sector: A Framework for Analysis and Decision Making." In *Gender and the Waste Economy Vietnamese and International Experiences*, 15–39. Hanoi: National Political Publisher.

Nzeadibe, T. C., and F. U. Ochege. 2018. "The Urban Vulnerability of Waste Workers in Nigerian Cities: The Case of Aba, Nigeria." In *The Palgrave Handbook of Sustainability: Case Studies and Practical Solutions*, Cham, Switzerland: Palgrave Macmillan, 313–329.

Ogando, A. C., S. Roever, and M. Rogan. 2017. "Gender and Informal Livelihoods: Coping Strategies and Perceptions of Waste Pickers in Sub-Saharan Africa and Latin America." *International Journal of Sociology and Social Policy* 37 (7/8): 435–451. https://doi.org/10.1108/IJSSP-06-2016-0077.

Onyx, J., and P. Bullen. 2000. "Measuring Social Capital in Five Communities." *The Journal of Applied Behavioral Science* 36 (1): 23–42. https://doi.org/10.1177/0021886300361002.

Parizeau, K. 2015. "When Assets Are Vulnerabilities: An Assessment of Informal Recyclers' Livelihood Strategies in Buenos Aires, Argentina." *World Development* 67: 161–173. https://doi.org/10.1016/j.worlddev.2014.10.012.

Patton, M. Q. 2015. *Qualitative Research and Evaluation Methods: Integrating Theory and Practice*. 4th ed. California: Sage Publications.

Porter, M. E. 2015. "Marginal Recycling: Place and Informal Recycling in St. John's, Newfoundland, and Labrador." *Local Environment* 20 (2): 149–164. https://doi.org/10.1080/13549839.2013.836162.

Prasad, Sameer, Ashish Jain, Jasmine Tata, and Shantha Parthan. 2012. "From Rags to Riches: Tapping the Social Capital within the Solid Waste Informal Sector." *South Asian Journal of Business and Management Cases* 1 (2): 77–89. 10.1177/2277977912460117.

Putnam, Robert D. 1994. "Social Capital and Public Affairs." *Bulletin of the American Academy of Arts and Sciences* 47 (8): 5 10.2307/3824796.

Reno, J. 2016. *Waste Away: Working and Living With a North American Landfill*. Oakland, CA: University of California Press.

Simpson, M., K. Oduro-Appiah, E. Gunsilius, S. M. Dias, and A. Scheinberg. 2024. "Shifting Perceptions of Informal Operators in the Service and Value Chains: A Retrospective of 40 Years of Observation and Advocacy for Informal Recyclers and Waste Service Providers, through the Eyes of Five Global Participant-Researchers." *Waste Management & Research: The Journal of the International Solid Wastes and Public Cleansing Association, ISWA*. Advance online publication. https://doi.org/10.1177/0734242X241280076.

Taylor, E., Building community with recycling: a case study of two small islands in British Columbia, Canada (Masters dissertation)., 2008, https://dspace.library.uvic.ca/server/api/core/bitstreams/cbada99b-4b9f-4e04-940f-c0c8a73496d1/content

Tremblay, C. 2007. *Binners in Vancouver: A Socio-Economic Study on Binners and Their Traplines in Downtown Eastside*, 192. Victoria, BC: University of Victoria.

Tremblay, C., J. Gutberlet, and A. M. Peredo. 2010. "United We Can: Resource Recovery, Place, and Social Enterprise." *Resources, Conservation and Recycling* 54 (7): 422–428. https://doi.org/10.1016/j.resconrec.2009.09.006.

Tzanakis, B. M. 2013. "Social Capital in Bourdieu's, Coleman's, and Putnam's Theory: Empirical Evidence and Emergent Measurement Issues." *Educate~* 13 (2): 2–23.

Uddin, S. M. N., J. Gutberlet, A. Ramezani, and S. M. Nasiruddin. 2020. "Experiencing the Everyday of Waste Pickers: A Sustainable Livelihoods and Health Assessment in Dhaka City, Bangladesh." *Journal of International Development* 32 (6): 833–853. https://doi.org/10.1002/jid.3479.

Valentine, G. 2007. "Theorizing and Researching Intersectionality: A Challenge for Feminist Geography." *The Professional Geographer* 59 (1): 10–21. https://doi.org/10.1111/j.1467-9272.2007.00587.x.

Walby, Sylvia, Jo Armstrong, and Sofia Strid. 2012. "Intersectionality: Multiple Inequalities in Social Theory." *Sociology* 46 (2): 224–240. 10.1177/0038038511416164.

Wilson, D. C., C. Velis, and C. Cheeseman. 2006. "Role of Informal Sector Recycling in Waste Management in Developing Countries." *Habitat International* 30 (4): 797–808. https://doi.org/10.1016/j.habitatint.2005.09.005.

Yang, L. H., A. Kleinman, B. G. Link, J. C. Phelan, S. Lee, and B. Good. 2007. "Culture and Stigma: Adding Moral Experience to Stigma Theory." *Social Science & Medicine (1982)* 64 (7): 1524–1535. https://doi.org/10.1016/j.socscimed.2006.11.013.