Development and Change

Published on behalf of the Institute of Social Studies, The Hague

Check for updates

Waste Political Settlements in Colombia and Chile: Power, Inequality and Informality in Recycling

Nicolás Valenzuela-Levi

ABSTRACT

There are stark differences between the waste recycling literature from the global North and that from the global South. The literature from the global North tends to focus on empirical analyses of existing municipal recycling services and rarely considers institutional factors. When it does, the theoretical approaches adopted are limited, especially regarding the role of informal institutions. In contrast, recycling literature from the global South does focus on informal institutions, but it does so by concentrating on the struggles of waste pickers rather than on the performance of waste management services provided by local authorities. This divergence in the literature suggests the need for an analytical framework that integrates institutions and recycling performance. This article analyses waste disposal regimes in two Latin American metropolitan areas, Medellín (Colombia) and Santiago (Chile), and explores the link between income inequality and recycling. It focuses on the political settlements that lie at the heart of the waste regimes. As such, waste regimes in these two cities are understood to be a product of the interplay of balances of power, institutions and distribution of benefits. The study also highlights the need to understand informal institutions as relational phenomena that affect both the rich and the poor, and not just as a subsistence strategy by the latter.

INTRODUCTION

Two of the crucial challenges of our time are reducing income inequality, and finding ways to advance towards a circular economy of waste recycling. Both are included in the United Nations (UN) Sustainable Development Goals (SDGs): the aim of Target 10.1 is to ‘progressively achieve and sustain

This work is dedicated to Exequiel Estay, who led grassroots recycling initiatives in Santiago for decades. Sadly, he passed away in January 2020. The research was made possible thanks to the Becas Chile Programme from the Chilean National Commission for Science and Technology (Conicyt); it was funded by the CONICYT PFCHA/DOCTORADO BECAS CHILE/2016 - 72170123. I thank the anonymous reviewers for their very useful comments.

Development and Change 51(4): 1098–1122. DOI: 10.1111/dech.12591
© 2020 The Authors. *Development and Change* published by John Wiley & Sons Ltd on behalf of International Institute of Social Studies.
This is an open access article under the terms of the Creative Commons Attribution-NonCommercial-NoDerivs License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

income growth of the bottom 40 per cent of the population at a rate higher than the national average' by 2030 (United Nations, 2016a), while the goal of Target 12.5 is to 'substantially reduce waste generation through prevention, reduction, recycling and reuse', also by 2030 (United Nations, 2016b). The increasing urgency of transitions towards less resource-intensive development paths occurs in the context of high levels of income concentration among the rich. Yet little is known about how existing inequalities might affect environmental challenges such as reducing the generation of waste. Furthermore, the global nature of the SDGs demands the involvement of countries from the so-called periphery, and not just from the global North. It is the countries of the global South that are struggling with the most extreme inequalities, that are falling behind in circular economy efforts, and that receive least scholarly attention in the recycling literature.

For example, the indicators used to measure Target 12.5 of the SDGs are the 'national recycling rate' and 'tons of material recycled' (United Nations, 2019). Yet, the UN has only been able to collect such data from a handful of countries within the global South (ibid.). Most of the empirical knowledge about the effectiveness of household recycling is based upon studies carried out in rich countries, which have decades of experience in formal methods of recycling (Gregson and Crang, 2015; Millington and Lawhon, 2019). In these contexts, policies that promote and regulate recycling have been enforced for some time. In contrast, recycling in most African, Asian and Latin American countries has emerged as an informal activity driven by a rising global demand to recycle materials and, in most cases, is carried out without any formal government policy requiring people to do so (Brooks et al., 2018).

Scholars from different disciplines who study recycling also tend to approach the subject from different angles. On the one hand, studies that analyse the performance of mature municipal recycling services (Peretz et al., 2007) are usually quantitative and written from an engineering and/or an economics perspective; they pay little attention to any institutional factors (Valenzuela-Levi, 2019a). While the literature of the global North focuses on the effectiveness of existing recycling services, studies from the global South that evaluate the adoption of recycling techniques tend to focus on the hypothetical willingness to recycle rather than actual existing recycling systems (Challcharoenwattana and Pharino, 2016; Tadesse, 2009; Vásquez et al., 2014). In a recent review of research on waste conducted by social scientists, Millington and Lawhon (2019) identify a similar North–South divide. With regard to Latin America, in particular, social studies have focused on waste pickers, who have been analysed from the perspectives of social inclusion (Magni and Günther, 2014), precarity (O'Hare, 2018), mobilization (Sorroche, 2017), and hybridization between formal and informal sectors (Guibrunet, 2019). Studies about the performance of existing recycling services have emerged in the region only recently (e.g. Valenzuela-Levi, 2019b).

14677660, 2020, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/dech.12591 by Chile National Provision, Wiley Online Library on [02/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

It is difficult to find analytical frameworks that integrate both the performance of existing recycling systems and the struggles of waste pickers or other actors. Yet, factors such as power and institutions should be considered relevant when analysing the adoption of recycling policies. In the global North, where literature on this subject is more abundant, studies that look at performance and include factors such as electoral politics (e.g. Laidley, 2013; Sidique et al., 2010) tend to focus on local-level election results as a proxy for the political leanings of individuals. Politics, in this sense, acts as a variable to characterize demand rather than one to analyse institutions and power. More recent works, such as the study of Italian municipalities by Agovino et al. (2019), have attempted to introduce corruption and culture as institutional variables to explain separate collection rates. These authors point to the need to understand failure and success in terms of specific local contexts. A theoretical framework that has integrated these issues in a more systematic way is the 'waste regimes' framework proposed by Gille (2010), which has been applied to the case of Hungary. Although waste regimes are useful for this analysis, they do not include any discussion about performance or efficiency.

What does the literature say about the role of income inequality? Within the performance-oriented literature, access to income is seen as a fundamental factor in explaining the adoption of recycling by households and service performance by local authorities. However, income distribution is seen in these studies as a mere issue of consumer behaviour, willingness to pay, and always from the 'demand side', without questioning its intrinsic association with balances of power and institutional settings on the 'supply side' (Valenzuela-Levi, 2019a). When it comes to Latin America, the most income-unequal region of the world (Palma, 2014), the adoption of recycling methods by households is conditioned by the politics of waste and the tensions between formal and informal actors (Millington and Lawhon, 2019). Issues such as marginalization and dispossession are recurrent topics in the discussion about the role of waste pickers as service providers. Nonetheless, the lack of integration between scholars' views on actual adoption, performance in provision and waste regimes limits our ability to understand how overall income inequality, so rooted in the region, is linked to the political economy of waste.

Having identified these gaps in the literature, this study has two main goals: to explore how the adoption of recycling is influenced by the interdependence of balance of power, institutions and distribution of benefits in two South American cities; and to use the case studies to shed some light on the role played by income inequality in the adoption of recycling. Using a mixed-methods approach, the article studies waste regimes in the metropolitan cities of Medellín (Colombia) and Santiago (Chile). Chile and Colombia have some of the highest rates of inequality in Latin America (Palma, 2014). While Medellín and Santiago have almost exactly the same household-level distribution of available income (Valenzuela-Levi, 2020), their waste

14677660, 2020, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/dech.12591 by Chile National Provision, Wiley Online Library on [02/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

management and recycling operations are very different. In Medellín residential recycling is based on the formalization of local waste pickers and a single municipally owned waste management company, whereas in Santiago services are based on an oligopoly of private companies that compete for municipal recycling contracts, and include a substantial role for transnational capital.

Using both qualitative semi-structured interviews and quantitative data on recycling, this article characterizes how waste management systems are incorporating recycling in both cities, their achievements in terms of separate collection, and the balances of power, institutions and distribution of benefits that shape each system. Fifty interviews were conducted in order to gather the views of managers and union representatives from waste management companies, recycling cooperatives, small and medium enterprises, as well as national and local government officials and community leaders.

The main theoretical contribution of this research is the notion of 'waste political settlements', which accounts for the institutions, power balances and distribution of benefits in the waste management sector. In order to explain this, I integrate theories based upon approaches towards political settlements and waste regimes. Then I illustrate the need to look at informal institutions as an integral part of waste political settlements, as opposed to only considering formal institutions and policies. Lastly, I claim that informal institutions that play a role in the functioning of the waste management sector represent a phenomenon that must be observed in relational terms, both among the rich and the poor, and not just as a survival strategy by the latter.

POLITICAL SETTLEMENTS AND WASTE REGIMES

Recently some scholars (e.g. Moreau et al., 2017) have acknowledged that waste management decisions are influenced by specific institutional and political economy factors; in general, however, these aspects have not been addressed in the majority of recycling studies, particularly those that analyse the performance of waste management services. A possible explanation for the neglect of such institutional factors is that studies tackling the economics of municipal recycling 'tend to select samples of cases that belong to the same institutional framework' (Valenzuela-Levi, 2019a: 440). Hence, they do not allow the possibility of comparing two or more institutional settings.

Outside this performance-oriented literature, Gille (2010) develops the notion of 'waste regimes' and defines these regimes as 'a specific set of social institutions' that determines what wastes 'are considered valuable by society, that lay down the principles of valuation, and that resolve the resulting value conflicts' (ibid.: 1056). The author explains that:

14677660, 2020, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/dech.12591 by Chile National Provision, Wiley Online Library on [02/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

> At their core is a structure of rights and rules, which implies a certain distribution of advantages and disadvantages. Social institutions determine what wastes … are considered valuable by society, and these institutions regulate the production and distribution of waste in empirically tangible ways. Waste regimes differ from each other according to the production, the representation, and the politics of waste. In studying the production of waste we are asking questions such as what social relations determine waste production, and what the material composition of wastes is. When we inquire into the representation of waste, we are asking which side of key dichotomies waste has been identified with, how and why waste's materiality has been misunderstood, and with what consequences. Also to be investigated here are the key bodies of knowledge and expertise that are mobilized in dealing with wastes. In researching the politics of waste, we are first of all asking whether, or to what extent, waste issues are a subject of public discourse, what is a taboo, what are the tools of policy, who is mobilized to deal with waste issues, and what non-waste goals do such political instruments serve. Finally, no waste regime is static, thus we must study them dynamically, as they unfold, as they develop unintended consequences and crises (ibid.).

In their review of the literature on wastes and global recycling economies, Gregson and Crang (2015: 155) mention the 'connection to political waste regimes' in terms of waste as a fallout of social practices, and emphasize the political dimension of the work by Gille (2010). However, they point out that this analytical framework could fall short in analysing the reality in the global South. An interesting exercise would be to explore the broader field of political economy and institutional economics, which has indeed largely discussed sets of 'social institutions' when attempting to account for performance of diverse productive sectors in the global South. The analysis that follows explains some basic notions from these fields and argues in favour of the use of the political settlements approach to enrich our understanding of waste disposal regimes.

Building on the idea of transaction costs and market failures (Coase, 1960), institutional economists in the second half of the 20th century attempted to study the rules of the game in which transactions occur (North, 1990), which lead to different degrees of overall efficiency in markets. However, by the start of the 21st century there was strong criticism of hegemonic neoclassical analyses of the roles of markets, the state and institutions. For example, Chang (2002) provides a thorough analysis of post-war institutional approaches among mainstream economists and highlights how incomplete they are with regard to four main problems: 'the definition of the free market; the definition and the implications of market failure; the market primacy assumption (namely the view that the market is logically and temporally prior to other institutions, including the state); and the analysis of politics' (ibid.: 557). Chang claims that conceptual downsides in economics cannot be resolved by simply countering state-interventionist policies with anti-interventionism. Crucially, the problem requires developing an *institutionalist political economy*and bringing institutions and politics to its analytical core.

14677660, 2020, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/dech.12591 by Chile National Provision, Wiley Online Library on [02/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Chang's critique exemplifies what has been called 'heterodox economics' (Pike, 2004). Particularly since the financial crisis in 2008, this heterodox field has been enriched with new theoretical and empirical works. New approaches have included building on Karl Polanyi's 'network and embeddedness' approach (Peck, 2013) and applying it to real-life case studies that also introduce the problem of space into the analytical effort (Cahill, 2020). Another recent work that attempts to integrate heterodox economics and the role of urban agglomerations in current capitalist development is the research by Goodfellow (2017), who applies Khan's (2010) 'political settlements approach' to comparative analyses of sub-Saharan African cities.

Khan (2010) originally proposed this framework to analyse government failure, transition costs and growth-enhancing institutions in the global South. In his words, a political settlement 'is a combination of power and institutions that is mutually compatible and also sustainable in terms of economic and political viability' (ibid.: 4). In this context, 'the "rent seeking" activities of powerful groups result in the creation of both formal and informal institutions', which 'sustain distributions of economic benefits for the participants in these institutional arrangements' (ibid.: 25).

Goodfellow's (2017) use of the political settlements approach illustrates its usefulness for an analysis of institutions within the waste regimes of two Latin American cities. As demonstrated in his account of Kampala (Uganda), Kigali (Rwanda) and Addis Ababa (Ethiopia), political settlements can inform comparative analyses of national and metropolitan political economies in the so-called developing countries, especially in terms of the historical processes that explain current institutional configurations. Moreover, the political settlements approach tries to identify and explain a diverse range of informal institutions, making it applicable to the problems of formal and informal institutions that are crucial in the economics of recycling. Because of Khan's original interest in transition costs — understood to be those costs that emerge from conflict between policy, formal and informal institutions, powerful actors and different incumbent groups in society — political settlements can help to extract lessons for adoption of environmental technologies, such as recycling, that require fundamental changes to the way things are currently being done.

Rather than economic growth, this article uses the political settlements approach as a tool to explain waste management regimes in terms of their political dimension, and specifically looks at the metropolitan cities of Medellín in Colombia and Santiago in Chile. Such an analysis requires attention to the configuration of the broader rules of the game in order to understand the specific case of waste management and recycling. The characterization of the balance of power helps us to understand how different groups can hold power and impose their will via formal and informal institutions. Institutions are therefore looked at as an expression of that balance of power — both from the perspective of policy and formality, as well as

14677660, 2020, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/dech.12591 by Chile National Provision, Wiley Online Library on [02/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

informality — and as enablers of the distribution of benefits that is allowed by each political settlement.

A relevant aspect of this approach is the notion that Khan (2010) sees informal institutions emerging when formal institutions do not distribute benefits in line with balances of power. In this sense, we can expect to observe informality in all groups, and not just among the poor. According to Millington and Lawhon (2019), there is a dominant view in recycling studies that associates the global South with informality as a survival strategy among the poor. As noted by Rosa and Cirelli (2018), the divide between the informal and the formal exists not only between the global North and South, but also in Europe, where informality tends to be ignored. McFarlane (2012: 91) criticizes this dominant view and points out that 'informality is represented by unorganised, unregulated labour, although in practice such labour is often highly organised and disciplined'.

As the following two case studies show, the political settlements approach opens the possibility of integrating informality as a relational issue: a phenomenon that involves both the rich and the poor. Even in accounts that attempt to provide innovative frameworks based on research from the global South, informality continues to be viewed as an issue of the poor. For instance, when Millington and Lawhon (2019: 1047–48) discuss efforts to understand the 'informal waste sector', they focus on 'informal waste as marginal livelihood strategy', 'informal work as environmental and economic contribution', and 'coordination and formalization of informal work'. They then separately discuss 'privatization and multi-scalar governance'. However, words such as 'corruption' or 'illegal' are never discussed at this governance level. In contrast, Khan (2010) discusses corruption, for example, as part of the informal arrangements that emerge to shape privatization processes and multi-scalar governance.

Is it acceptable to talk about waste in the global South, or anywhere else, without mentioning the role of corruption and illegal activities among the rich, and not just among the poor? Valuable efforts such as those of Millington and Lawhon (2019) do not provide any tool to do so, and perpetuate the focus on the 'informality of the poor'. The introduction of the political settlements approach into the analysis of waste regimes can help to overcome this limitation. The following section details the particularities of waste political settlements in the cities of Medellín and Santiago.

CASE STUDIES: WASTE POLITICAL SETTLEMENTS IN MEDELLIN AND SANTIAGO

Medellín (Colombia)

In April 2018, I interviewed an employee who worked in Medellín for a transnational waste management company based in Chile and who was ex-

14677660, 2020, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/dech.12591 by Chile National Provision, Wiley Online Library on [02/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

ploring new business opportunities in Colombia. This same company owns the landfill that receives 54.7 per cent of Santiago's approximately 3 million tonnes of household waste annually. According to the interviewee, at 'one time, an Austrian recycling expert came to Medellín to get to know our system. After seeing how it works, he described it as a Gipsy bazaar'.[1] He used the example of the Austrian expert and the image of the 'Gipsy bazaar' to explain how unusual the Colombian waste management sector is. After a Constitutional Court ruling in 2011, separate collection services in residential areas must formally include waste pickers, who must be part of a recycling cooperative. My interviewee was emphatic in his statement that the ruling is inhibiting capital investment in the waste sector and that 'recycling will never be seriously developed in Colombia' as a result.

According to municipal data, between 2016 and 2017 separate collection rates of the total waste collected in Medellín had risen by 4 per cent to 17.4 per cent (Medellín Cómo Vamos, 2019). The system in this Colombian city is based on the work done by recycling cooperatives, which include 3,662 registered *recicladores de oficio* (career recyclers or waste pickers). Since 2013 this separate collection rate has been continuously increasing, reaching 23 per cent in 2018. According to municipal authorities, recent increases have to do with the strengthened capacity of recyclers, thanks to support programmes set up by the municipality. The mean recycling capacity per recycler increased from 78.1 kg per day in 2017 to 113 kg per day by the end of 2018 (ibid.). These municipal support plans are a result of the local municipality's waste management plan, which is committed to achieving a goal of 70 per cent in separate collection rates by 2030, in broad alignment with SDG Target 12.5 (ibid.).

In the case of Medellín, separate collection data do not differentiate between household and commercial waste. This is a common problem with such data, which has been acknowledged by teams from the UN (2019) and the European Commission (2015). For instance, similar problems make data from European capitals difficult to compare. As a reference, it could be useful to consider data provided directly to me by the recycling cooperative Asemar, which is part of the Recycling Board of the Department of Antioquia, the region in which Medellín is located. According to Asemar, recycling cooperatives were responsible for 8.2 per cent of the total waste collected in 2017. The remaining waste collected for material recovery would therefore correspond to commercial waste, and not be collected by waste cooperatives. All the aggregate files are tracked by yearly updates of the Integrated Waste Management Plan 2016–2027, which is the responsibility of the municipality (Alcaldía de Medellín, 2019), and in reports by the citizen watchdog entity, Medellín Cómo Vamos (2019).

1. Interview, representative of a transnational waste management company, Medellín, 11 April 2018.

14677660, 2020, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/dech.12591 by Chile National Provision, Wiley Online Library on [02/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

At the heart of the relationship between income distribution in the city and the adoption of recycling is the fact that the formalized work of waste pickers is spread throughout the entire urban area. The municipality, in conjunction with recycling cooperatives, coordinates a distribution of routes that cover the entire territory. On the basis of this territorial coverage, waste pickers recognize differences in recycling that are related to the income of residents living in specific areas. As one member of a recycling cooperative in Medellín explained to me: 'In poor boroughs there is less material and its selection is inferior. In the rich areas people go to the supermarket, which means the material is better and comes in bigger quantities. … It is not that they separate better, because we do that job. Take for instance cans. Only here in richer boroughs do we find good quality aluminium'.[2] As the interviewee from the transnational company told me, in Medellín it is the big businesses, and not the waste pickers, who seem to feel excluded: 'recyclables from residential areas can only be collected by recycling cooperatives. No one else can enter there. For instance, if a company wants to implement a recycling route, it can't do it because recycling cooperatives that are associated to that area can accuse them and the court will rule in favour of them'.[3]

Such is the recycling landscape in Medellín following the implementation of the 2011 Constitutional Court ruling in local municipalities. On the one hand, the territory is covered by recycling cooperatives who have made agreements with the municipal government. Different areas of the city are the responsibility of specific cooperatives. On the other hand, on a smaller scale, each cooperative organizes the coverage of their assigned territory. For instance, the recycling cooperative Asemar assigns small areas to each of its 800 waste pickers. The number of waste pickers operating in an area is reduced as their recycling routes take them closer to the city's boundaries (the city lies in the Aburra Valley and is surrounded by mountains; fewer people live where the terrain becomes steeper). This ensures that these recyclers are able to collect approximately the same amount of recyclable material as those who operate in the more densely populated areas.

This level of organization has been crucial in implementing what was a notable local consequence of the 2011 Constitutional Court ruling: the receipt by recycling cooperatives of part of the municipal waste management revenue. This was implemented in 2017. The process and its implementation are described as follows from the perspective of one of the recycling cooperatives:

> The executive order No. 596 from year 2017 introduced the possibility for the recycler to receive part of the municipal waste management fee … what we recycle does not go to that service provided by Empresas Varias [the municipal waste management company]. This is

2. Interview, Asemar representative, Medellín, 18 April 2018.
3. Interview, transnational waste management company representative, Medellín, 11 April 2018.

14677660, 2020, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/dech.12591 by Chile National Provision, Wiley Online Library on [02/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

> not collected by them. Therefore, Empresas Varias was charging something without paying for the recyclers' work. Thus, now we are generating a daily report that is sent to the Superintendence of Public Services. … Each report includes a detail of receipts from materials that we sell, and the name and identification of each recycler, plus how many kilos he brought each day to the storage point.[4]

This additional income allows waste pickers to earn slightly above the minimum wage, something that was not possible previously as they were paid exclusively according to the weight of recyclable material that they were able to sell at market prices. The share of the municipal revenue is also an income that does not depend on the price fluctuations defined by the oligopolistic buyers of metals, glass, cardboard, paper and plastics, but on amounts defined by the city government. Since both sources of income — sales and municipal revenue — are still based on the number of tonnes collected, there is an incentive for the recycling cooperatives and their members to cover as much as territory as they can. This was one of the last elements to be added to the waste regime in Medellín. The definition and distribution of value is based on formalization of informal recycling, and it includes a fiscal component through redistribution of the local municipal revenue; it is no longer based solely on market participation in the trade of recycling materials.

It is worth noting that, according to interviewees, corruption does not appear to be an issue in terms of the separate collection of recycling in Medellín (this was not the case in Santiago, discussed in detail below). There were conflicts, such as claims by some cooperatives that they receive unfair treatment by the municipal government, and tensions between trade unions and the municipal public utility company, Empresas Públicas de Medellín (EPM). However, since collection and disposal are the responsibility of EPM, which is owned by the municipal government, and actors have been granted the right to participate based on judicial decisions, there seems to be no need to employ the kind of corrupt strategies that are associated with competing for public bids in Santiago. This raises the questions, how did this waste regime come about? What is the origin of the political settlement that sustains it? The answer requires a review of the long-term, and still ongoing, peace and state-building process in Colombia.

Colombia endured long periods of violent unrest throughout the 20th century. From 1946 to 1964, *la Violencia* (the Violence) involved armed clashes between supporters of the Conservative and Liberal parties that resulted in more than 200,000 deaths. The two parties eventually agreed to alternate the presidency, leading to a period called the 'National Front', which lasted until 1974 (Skidmore and Smith, 2005). The exclusion of less mainstream groups from the political system (Acemoglu and Robinson, 2006) motivated the emergence of three left-wing guerrilla groups between 1962 and 1970. During the decades that followed, self-defence groups and drug

4. Interview, Asemar representative, Medellín, 18 April 2018.

14677660, 2020, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/dech.12591 by Chile National Provision, Wiley Online Library on [02/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

cartels emerged and violence escalated, reaching a peak in 1990. That year drug cartels assassinated four candidates participating in the presidential election race (Skidmore and Smith, 2005). The crisis hit Medellín hard; in 1991 it had the highest murder rate in the world, of 375 homicides per 100,000 people, and was home to the feared Medellín Cartel (Maclean, 2015).

The high-profile assassinations and unprecedented murder rates were symptoms of a crisis that, by the end of the 1980s, resulted in the mobilization of the political establishment. In 1988 Colombia experienced its first democratic election of mayors (Maclean, 2015), which was seen as a way of giving more legitimacy to formal institutions. Following this democratization of local governments, politicians agreed to call for elections to a Constitutional Assembly to draft a new constitution which was expected to establish the basis for structuring a democratic peace process in Colombia (Garcia-Guadilla and Hurtado, 2000; Gómez Roldán, 2011; Nielson and Shugart, 1999). The call for a Constitutional Assembly included offering amnesty and participation to the guerrillas. One such group, the 'M-19', participated in the elections and managed to win almost one third of the total seats to take the presidency of the Constitutional Assembly (Nielson and Shugart, 1999). According to Skidmore and Smith (2005), underrepresentation of urban areas and the exclusion of left-wing groups had been, in the past, major causes of violence and lack of governability. The new constitution — drafted by the Assembly and promulgated in 1991 — therefore created a new formal institutional arrangement that favoured political participation and decentralization, and granted unprecedented social rights to poor and vulnerable groups (Fernández, 2009; Henao, 2012; Saffon and García-Villegas, 2011). Both the local government democratization of 1988 and the 1991 Constitution are fundamental to our understanding of the waste regime system in Medellín.

In order to understand Medellín's social and economic development and its private–public relationships in particular, special attention must be paid to EPM, the city's municipal public utility company which is responsible for the collection and disposal of waste (Dávila, 2012). Attempts to privatize public utilities, as was the global trend at the time (Goldman, 2014), faced a new level of local political challenge after the democratic election of mayors and city councillors (Maclean, 2015). Proposals for privatization of EPM were discussed during 1996 and 1997, but they were firmly rejected by mobilized citizenship groups, trade unions and, crucially, by the majority of the political elites who were members of the City Council (Barrios, 2010).

By the time this research commenced, EPM had not been privatized (with the exception of part of its telecommunications branch, opened to private participation in 2014), and had continued to grow in terms of its pool of services. In 2013 the municipal waste management company, Empresas Varias,

14677660, 2020, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/dech.12591 by Chile National Provision, Wiley Online Library on [02/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

was incorporated into the EPM Group.[5] The importance of EPM and the opposition to its privatization (Barrios, 2010; Maclean, 2015) can be understood in the context of the role that services play in integrating into the city those who were displaced by the armed conflict. Unusually, from a comparative international perspective (Gilbert, 2012), Colombian slum dwellers are granted access to basic services, even if they do not have secure land tenure. The result in Medellín is that political elites have protected the role of the public sector in managing these basic services. In this environment, waste management in Medellín has for a long time been planned and executed exclusively by the municipal government, including a succession of landfill sites designated for waste disposal in the city.

In addition to the role of EPM, a fundamental part has been played by the 1991 Constitution and the Constitutional Court. In the words of the then President César Gaviria, the aim of the new Constitution was to implement a 'Social State, agreed with different social and political sectors, as well as with guerrilla groups' (from Gaceta Constitucional 1991, cited in Henao, 2012: 153). This recognition of demands by left-wing guerrillas led to an unprecedented granting of social rights in the new constitution. Although the power of left-wing groups dwindled in the years that followed, the rights defined in the constitutional text, and the composition of the Constitutional Court, led to decades of progressive rulings (Fernández, 2009; Henao, 2012; Saffon and García-Villegas, 2011).

As mentioned above, in 2011 the Constitutional Court mandated a new regime for waste management and recycling (Fernanda-Tovar, 2018) based upon the Court's 2003 decision that organized waste pickers had to be recognized by public authorities and included in efforts to recycle. The Constitutional Court decreed that these groups had the right to work and to sustain their livelihoods through recycling (Amórtegui, 2018). The interpretation of the constitutional rights of waste pickers reached a critical juncture following a conflict in 2011 over a public bid for waste management in the Colombian capital, Bogotá. According to the original 2003 ruling, the terms for participating in such a bid included that companies had to be partially owned by recycling cooperatives. However, the ownership share of competing companies by cooperatives was in some cases as low as 0.1 per cent, and some cooperatives were accused of existing only on paper (ibid.). The ruling of 2011 not only suspended the public bid in Bogota, but ordered measures such as a new census of recycling cooperatives by local authorities, and the obligation for government regulators to provide a framework for the effective inclusion of waste pickers, all of which had to be applied to the whole country (ibid.).

In Medellín, one of the most notable policy effects of the 2011 ruling is the share of municipal revenue that waste pickers receive (mentioned above)

5. For more information, see the company website: 'Quienes Somos' ['Who we are'], www.emvarias.com.co/corporativo/home/institucional/quienes-somos

14677660, 2020, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/dech.12591 by Chile National Provision, Wiley Online Library on [02/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

according to the weight of recyclable material that they submit to designated collection centres (Fernanda-Tovar, 2018). In Colombia, public services are funded via differentiated fees charged to all households (Murcia and Daza, 2008). Fees are defined according to the value of the land, and richer households are supposed to subsidize poorer ones. Revenue from fees is supposed to cover the operational costs of public services. In special cases, authorities can decide to subsidize some groups according to socio-economic criteria, or to inject additional resources to expand coverage (ibid.). These municipal waste management fees are the source of income for each waste picker, thanks to a highly organized accounting system implemented by the cooperatives. As illustrated by the comments of the transnational waste management company representative quoted at the beginning of this section, transnational companies do not have any role in recycling household waste in Medellín. However, in the Chilean city of Santiago the opposite holds true: there, as the following section shows, such companies dominate landfill and household waste management services.

Santiago (Chile)

According to data collected for this research, by 2015 most of the municipalities in the Santiago Metropolitan Area (23 out of 37) were disposing of their waste into two landfill sites owned by transnational companies. One of these landfills, which holds 54.7 per cent of Santiago's disposed household waste, is owned by the Spanish-American company Urbaser Danner Group. The other is owned by the French company Veolia, and receives 5.8 per cent of the city's waste. A third landfill, which receives the remaining 39.5 per cent of the metropolitan city's waste, is owned by the Chilean holding company, Consorcio Santa Marta. These private solutions to a public problem have been achieved despite high sunk costs (investments that cannot be recovered when exiting the market) — a situation that might be expected to lead to a government monopoly on the service in question (Joskow, 2007). Whereas private companies would usually compete for one centralized market, in Santiago landfill companies compete for waste disposal contracts in each of the 37 municipalities, with each municipality holding its own independent bidding process every four to eight years, in which the same companies compete.

As with many aspects of Chilean life, municipal services have been shaped by the military dictatorship that held power from 1973 to 1990. Following the international guidance of the Washington Consensus (Goldman, 2014), a devolution of services starting in the late 1980s was accompanied by the possibility of outsourcing the various sections of these services, including waste collection and disposal (Adapt Chile, 2016). This led to the privatization of waste management in most of the 37 municipalities of the Santiago Metropolitan Area. While a few municipalities kept collection and

14677660, 2020, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/dech.12591 by Chile National Provision, Wiley Online Library on [02/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

transport partially or totally in-house, using equipment owned and workers hired by the municipality, all of them contracted out waste disposal to private companies (Reyes, 2004). Until the beginning of the 1990s, when the new regime was implemented, landfills were planned jointly by regional authorities and mayors (Quezada, 2016). After the closure of the last publicly planned landfill in 1996, initiatives for creating new waste disposal facilities were expected to come from private capital, which led to an oligopoly in which three landfill companies competed for each municipality's contracts (Pizarro and Jara, 2015).

In this context household recycling has emerged as an uncoordinated activity, which is sometimes performed by local municipalities (Valenzuela-Levi, 2019b) and sometimes by private providers that can be either formal or informal (Vásquez, 2011). Furthermore, as in other Latin American cities, the boundaries between formal and informal are not clear-cut (Guibrunet, 2019). For instance, while richer municipalities tend to rely on formal industrial services, a few poorer municipalities base their separate waste collection system partially or entirely on collaboration with informal waste pickers (Valenzuela-Levi, 2019b).

Official waste management data on the generation and treatment of commercial waste are available on the National System of Waste Declaration (Ministerio de Medio Ambiente, 2019). However, data from local municipalities are incomplete. Official figures in Santiago are contradictory and tend to be generated from broad estimates. For instance, in 2009 the regional government launched a recycling programme, Santiago Recicla, which has provided conflicting figures in terms of the total amount of waste that is recycled (see Corporación Nacional de Medio Ambiente Región Metropolitana, 2005; Intendencia Region Metropolitana de Santiago, 2009; Santiago Recicla, 2017). A study commissioned by the regional government itself stated that the official figures on household waste recycling were unreliable (Pontificia Universidad Catolica de Valparaiso, 2006). However, since household waste management is the legal responsibility of local municipalities and thanks to a well-functioning Transparency and Access to Information Law, it was possible to collect primary data on separate household waste collection rates,[6] and to supplement these with official data from commercial and industrial waste. By 2017, the overall separate collection rate was 15 per cent of waste generated in the Santiago Metropolitan Area. However, this breaks down to 22 per cent of commercial waste, and just 1.1 per cent of household waste collected by municipalities. While household waste collected by municipalities was 33.3 per cent of the total waste collected,

6. I asked the 37 municipalities for their collection data using the Transparency Act, obtaining answers from 36 of them. The separate collection rate (SCR) was then calculated for year 2017 using the formula $SCR = R / (R + L)$, where R is tonnes of waste collected for material recovery (inorganic recycling and/or composting) and L is tonnes of waste collected for disposal at the landfill.

14677660, 2020, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/dech.12591 by Chile National Provision, Wiley Online Library on [02/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

recycling generated by households was just 2.5 per cent of the total tonnes collected for recycling.

In terms of the link between income distribution in the city and recycling, the situation coincides to some extent with that of Medellín: socio-economic inequality is expressed by territorial segregation between boroughs, with both the quantity and quality of recyclable material being higher in the more affluent areas. However, the income–recycling link operates in a slightly different way.

According to Exequiel Estay, an emblematic leader of recycling associations in Santiago, there are income-related differences in the quality of recyclable materials but not in pro-environmental behaviour. In interview, he dismissed the idea that richer people are better at waste separation because they are more environmentally aware or are better educated. He pointed out that in many wealthier households it is often the household staff and not the family who separates the waste. He also described how, in recent years, waste pickers have seen their access restricted in richer boroughs: 'Waste pickers used to go to the poshest neighbourhoods. But about eight years ago, when all these private security services boomed, they started to be kicked out'.[7] This physical expulsion of waste pickers occurred at the same time that municipal recycling services were set up in the most affluent boroughs of Santiago. The best example of this is Vitacura, the richest borough in Chile, which implemented recycling in 2006 and by 2017 had the highest recycling rate of 8.5 per cent within the Metropolitan Area. Figure 1 illustrates the relationship between autonomous municipal revenue per capita (which reflects the income level among residents) and the recycling rates in 35 municipalities of Santiago. With the exception of one poor borough, La Pintana, on the one hand, and a number of affluent municipalities that have not implemented recycling, on the other hand, the highest separate collection rates (SCRs) tend to be found in the richest areas of the city.

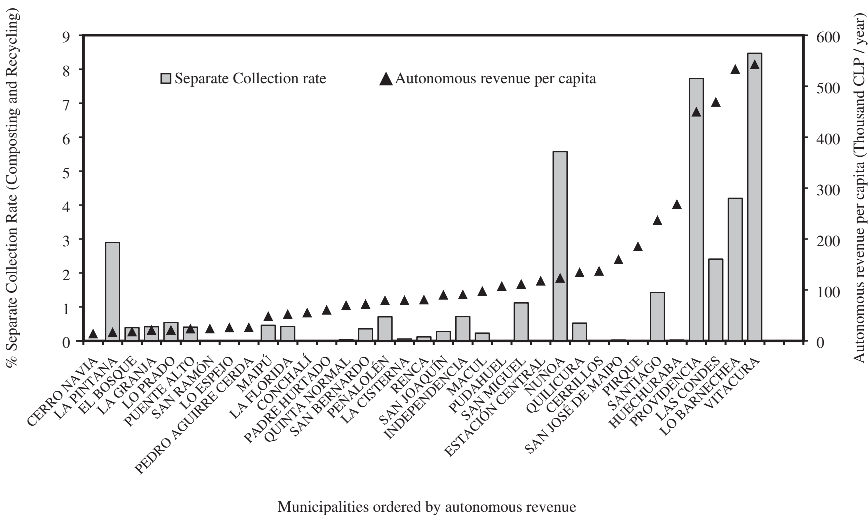
Although a new law for the Promotion of Recycling and Extended Producer Responsibility was passed in 2016 (Ministerio de Medio Ambiente, 2016), executive orders that were necessary for its implementation were still pending in 2019 (Valenzuela-Levi, 2019b). According to this law, waste pickers are named as traditional handlers of recyclable materials. However, the only way they can participate in the new recycling framework is to formalize their activities and to compete with the large companies that dominate the waste management market.

Figure 1 shows recycling rates largely reproducing existing income inequality, but it also shows a generally low penetration of recycling, with many boroughs lacking any recycling services. High-ranking officials from the waste management sector in Santiago argue that separate collection rates are low in Santiago because of differences in the resources available in each

7. Interview, Exequiel Estay, Santiago, 23 March 2018.

14677660, 2020, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/dech.12591 by Chile National Provision, Wiley Online Library on [02/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Figure 1. Separate Collection for Material Recovery and Autonomous Revenue per Capita in 35 Municipalities of the Santiago Metropolitan Area



Sources: Author's compilation based on data collected from municipalities.

municipality, and not because people are unwilling to recycle. As one member of a Metropolitan Waste Management Association explained to me, 'There are people that want to participate in recycling, but the supply is clearly insufficient and expensive. So, in this case, demand is much higher than supply'.[8] Managers from the oligopoly of landfills expressed the same view. As one told me, 'There is little recycling because nobody pays for it. It has nothing to do with intrinsic evilness of companies or people. There is no more recycling because somebody has to pay the bill. Today municipalities have more needs than money, and recycling is not convenient because it is not profitable for companies'.[9]

The profitability of the dominant waste management business model in Santiago is clearly a key factor holding back recycling, and managers from landfills are transparent about it. As another landfill manager — from a company whose business involves not only landfills but also other forms of waste management — informed me, inequality, taxation, redistribution of resources and the power of the waste management companies themselves were all part of the explanation: 'Taxes do not balance inequalities among municipalities. So you have a couple of municipalities with many resources and others that simply can't afford changing their system. Moreover, where

8. Interview, Emeres representative, Santiago, 20 March 2018.
9. Interview, transnational waste management company representative, Santiago, 14 March 2018.

14677660, 2020, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/dech.12591 by Chile National Provision, Wiley Online Library on [02/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

resources are present, those whose bottom line depends on the business-as-usual have power to avoid that the municipalities change their traditional way of managing waste'.[10]

It was clear in all the interviews that large companies 'have power' over the decisions of local municipalities. Every interviewee in Santiago mentioned corruption and the way that municipal contracts are structured as being major factors affecting how waste is managed and disposed of in the city. According to interviewees, the two main mechanisms used to exercise this power were over-extended long-term contracts and bribes to municipal officers during public bids to obtain the waste collection and disposal contracts.

The structure of the contracts not only means that income inequality and residential segregation lead to the concentration of recycling among the richest boroughs, but also prevents innovative initiatives amongst the poorest ones. The rare exception to concentration of recycling in the rich areas is La Pintana, which is an emblematic working-class borough that was created in Santiago during the dictatorship, when slum-dwellers were forcibly displaced into La Pintana from more affluent areas (Morales et al., 1990). The 2.9 per cent of recyclable material recovered in La Pintana is not based on inorganic recyclable materials, as is the case with the rest of the municipalities. Instead it is based on the composting of vegetable waste. This initiative, which started in 2005, was possible thanks to the availability of rural land in the borough. La Pintana is situated on the southern outskirts of the city, almost two hours by bus from the city centre. It is located on land that is in less demand than elsewhere in the Metropolitan Area because it is far away, and close to gravel pits and old landfill sites.

The municipality of La Pintana implemented an in-house composting service that also aimed to create jobs in a context of high structural unemployment in the borough. Remarkably, as one public servant from La Pintana explained, the municipality considered expanding its operation and offering composting services to other nearby municipalities. However, the long-term exclusive contracts between these municipalities and landfills, as mentioned above, blocked the expansion of this service: 'We started a network of eleven municipalities to provide composting service for vegetable waste. We were ready to sign the contract, but the other municipalities realised that their landfill contracts were long term and exclusive: it was compulsory for municipalities to send their waste to the landfill. Breach of those contracts meant the pains of hell'.[11]

These issues of socio-economic segregation between boroughs, distribution of resources among municipalities, profitability of the waste management business model, long-term contracts, and corruption involved in

10. Interview, transnational waste management company representative, Santiago, 16 March 2018.
11. Interview, municipal public servant from La Pintana, Santiago, 14 March 2018.

14677660, 2020, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/dech.12591 by Chile National Provision, Wiley Online Library on [02/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

bidding are integral parts of the waste regime in Santiago. As in the case of Medellín, the political settlement underlying the waste regime here has involved violent conflict and is embedded in a long-term state-building process.

As mentioned above, the waste sector is regulated by neoliberal reforms that were implemented in the last years of the military dictatorship, led by Augusto Pinochet (Atria, 2013; Gárate Chateau, 2012). In 1988, a special law[12] for local governments was enacted, and many basic public services such as school education, primary healthcare and waste disposal were entirely transferred to municipalities. The 1988 reforms need to be understood in the context of a 17-year-long dictatorship which had defined the institutional environment; as the years of dictatorship came to a close, this institutional environment had to be accepted by the new civilian authorities, who reached an agreement with the dictatorship in order to enter a democratic transition. This process involved a constitution initially passed through a referendum in 1980 which has been labelled a fraud (Fuentes, 2013) , but later legitimized — after negotiations with the opposition — in a second referendum held in 1989 (Andrade Geywitz, 2003). The constitution established a set of Organic Laws,[13] which require approval from four sevenths of parliament. One of these Organic Laws specifically regulates local governments.

The 1973 military coup that resulted in the dictatorship of Pinochet was planned to end a period of strong politicization and hyper-mobilization of society during the 1960s and 1970s (Landsberger and MacDaniel, 1976), which culminated in 1970 in Salvador Allende becoming the world's first democratically elected, openly revolutionary socialist president. The constitution, and a number of associated Organic Laws passed between 1980 and 1990, were intended to restore an historically concentrated presidential power (Valenzuela, 2015). The main urban agglomerations became underrepresented in the parliament, and Santiago was fragmented into small municipalities without a metropolitan government. A military rationale for the new administrative division was established, based on generating smaller, socially homogeneous units that would be easier to control. This was the same rationale that led to residents living in slums in higher-income areas being evicted and forced to re-settle in newly created peripheral municipalities, such as La Pintana (Morales et al., 1990; Valdivia Ortiz de Zarate, 2011).

12. For more information on the Ley orgánica constitucional de municipalidades [Organic Constitutional Law of Municipalities], see: www.leychile.cl/Navegar?idNorma=30077
13. In Chile, Organic Laws define the organization of each state branch and the main national state agencies, in terms of their internal structure, attributions and responsibilities. They also set the rules of 'social' sectors such as education and pensions, in order to ensure that they keep working as a private market.

14677660, 2020, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/dech.12591 by Chile National Provision, Wiley Online Library on [02/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

14677660, 2020, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/dech.12591 by Chile National Provision, Wiley Online Library on [02/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Funding for local government is supposed to come from local taxes. However, these taxes depend on property values, commercial activity and car ownership, which are all concentrated in wealthier areas (Livert and Gainza, 2018). Funding for waste management reproduces these unequal dynamics. In terms of revenue, municipalities in Chile can charge residents a flat fee, but services are financed by undesignated funds. People living in social housing are exempted from waste management fees, and municipalities can add exemptions according to their own criteria (Vasconi, 2004; Vásquez, 2011). Interviewees from the waste management companies were in agreement in their estimates that between 70 and 80 per cent of Chilean households are exempted from paying waste management fees. This results in most collection and disposal services running a deficit and requires a system of cross subsidies within each municipality. Given the strong levels of territorial segregation (Ruiz-Tagle and López, 2014), the small number of municipalities where the majority of people pay both the council tax and the waste management fee are the richest ones concentrated in the eastern areas of Santiago, such as Vitacura, Las Condes and Providencia.

In this context, formal and informal institutional mechanisms have emerged to ensure the sustainability of profit rates and to mitigate risks among private investors in the waste sector. In terms of formal mechanisms, municipalities have granted long-term disposal contracts to companies that win their bids. The most striking example of this is a contract lasting from 1995 to 2027 with Urbaser Danner that ensures that the waste from 22 of the 37 municipalities in Santiago is disposed of at the transnational company's landfill site (Pizarro and Jara, 2015). Additionally, vertical integration has been achieved through the capturing of collection contracts by the same companies that own the landfills (ibid.). This is done through strategies that have been deemed illegal, but nonetheless have not been stopped. For instance, in 1995 the Chilean Preventive Antitrust Commission stated that one company — now owned by Urbaser Danner — was competing in the same collection bids via a number of different subsidiaries; by 2002 the same subsidiaries had acquired more than half of the collection contracts in the Santiago Metropolitan Region (Reyes, 2004). Corruption in the form of bribes represents another consolidated strategy to capture bids. Corruption cases in waste management bids have been denounced since the early 1990s (Rehren, 1996) but continue nonetheless, as in the case of a current investigation involving the mayors of four municipalities who are accused of colluding with a company owned by Urbaser Danner, to the detriment of one owned by Veolia (Pizarro and Jara, 2015).

FINAL REMARKS

Although the case study cities of Medellín and Santiago share many characteristics, such as income inequality and segregation, they are quite different

in terms of political settlements. This has meant very different waste regimes for the two cities. In Santiago, waste management is privatized and dominated by transnational capital; formal services are concentrated in specific areas according to profitability or excess of resources; recycling is limited by long-term contracts; and waste pickers are not allowed to work in some boroughs of the city. In Medellín, waste management is handled by the municipal public utility company; waste pickers have the right to collect household recyclable materials; their services are spread right across the city; and part of their income comes from the redistribution of council tax revenue.

Separate household waste collection rates are dramatically lower in the Chilean capital of Santiago, whereas overall recycling figures are higher in the Colombian city of Medellín, both in terms of household and commercial waste. Given that studies evaluating the potential for recycling have usually recommended inclusion of informal recyclers, it is plausible to hypothesize that lower recycling rates in Santiago are linked to both institutional obstacles to recycling initiatives and lack of integration of waste pickers. Further research would be needed to determine the exact causal links and mechanisms that may connect institutions and recycling rates. However, the comparison between Santiago and Medellín demonstrates the importance of political settlements as the basis of waste regimes. The adoption of crucial environmental technologies, such as municipal recycling services, that are needed to achieve SDG Target 12.5 will not be realized merely by changing consumer behaviour. It depends on collective decisions and the way institutions work. In this sense, three main points deserve to be highlighted in conclusion.

First, informal institutions exist in both cases, but in very different ways. Although informality 'from below' does exist in the form of waste pickers in Santiago, it involves crucial mechanisms at the elite level, supported by long-term and ongoing corruption as a way of making capital investment less risky and more profitable. Informal waste picking will probably continue to play a role as long as the political settlement keeps excluding large territories and communities from formal recycling. In Medellín, by contrast, the labour-intensive presence of waste pickers in the collection service might appear to be an example of informality, but it has in fact been formalized and even incorporated within sophisticated cash flow accounts, which enables payments to be made to individual recyclers funded by municipal revenue.

Second, we see different, competing business models of waste management, particularly regarding landfill disposal and separate collection. In both cities, which business model prevails does not depend primarily on the will of consumers, but on the political settlements that shape waste regimes. The power that each actor holds depends, in both cases, on the more general political settlement, which has been defined through state-building processes linked to violent conflicts. On the one hand, fragmentation of municipal re-

14677660, 2020, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/dech.12591 by Chile National Provision, Wiley Online Library on [02/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

sponsibility and privatization of landfill planning in Santiago is a product of a violent conflict in which the neoliberal agenda was imposed and political control over public services was reduced to a minimum. The primacy of the landfill business model in Santiago must be understood as a manifestation of the power of oligopolistic capital over local and small-scale competitors, as exemplified by the exclusion of waste pickers in general, and the case of the failed attempt to expand composting services in La Pintana. On the other hand, the superior position of waste pickers in Medellín is only possible because of the compromise between the political elite and parties of the left-wing guerrilla movement in the 1991 Constitution, which made the Constitutional Court a space to enforce strong recognition of social rights. This political settlement will be sustained only as long as the political elites see this compromise as a fair price to pay for peace and rule of law, after the country had been mired in an armed conflict that, by the beginning of the 1990s, did not have clear winners.

Third, and finally; under these circumstances, the key difference between the two cities does not seem to be what can technically be achieved in terms of recycling nor in consumer preferences. Rather, the main difference seems to come from the exclusion of some communities from household recycling service provisions. This exclusion leads to service disadvantage (Valenzuela-Levi, 2020): a partial or total absence of a supply of services, regardless of demand. It is this institutionally generated supply-side exclusion from recycling services, and not simply consumer preferences, that defines the link between socio-economic inequality and recycling in Medellín and Santiago.

REFERENCES

Acemoglu, D. and J.A. Robinson (2006) *Economic Origins of Dictatorship and Democracy*. New York: Cambridge University Press.

Adapt Chile (2016) *Antecedentes del Manejo y Gestión de Residuos en Chile* [*Background of Waste Management in Chile*]. Santiago: Adapt Chile.

Agovino, M., M. Cerciello and G. Musella (2019) 'The Good and the Bad: Identifying Homogeneous Groups of Municipalities in Terms of Separate Waste Collection Determinants in Italy', *Ecological Indicators* 98: 297–309.

Alcaldía de Medellín (2019) 'Seguimiento Plan de Gestión Integral de Residuos Sólidos Municipio de Medellín 2016–2027' ['Tracing the Integral Plan of Solid Waste Management']. Report. Medellín: Alcaldía de Medellín.

Amórtegui, D.N. (2018) 'Construcción de igualdad: desde la basura hasta la Corte' ['Building Equality: From Waste to the Courts'], in N. Orduz Salinas (ed.) *La Corte Ambiental, expresiones ciudadanas sobre los avances constitucionales* [*The Environmental Court, Citizen Expressions on Constitutional Achievements*], pp. 217–34. Bogotá: Fundación Henrich Böll.

Andrade Geywitz, C. (2003) 'La reforma constitucional del año 1989 al inciso 2° del artículo 5° de la Constitución: sentido y alcance de la reforma. Doctrina y jurisprudencia' ['The Constitutional Reform of 1989 to Subsection 2 of the 5th Article of the Constitution: Spirit and Scope of the Reform'], *Ius et Praxis* 9(1): 375–401.

14677660, 2020, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/dech.12591 by Chile National Provision, Wiley Online Library on [02/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Atria, F. (2013) *Veinte años después, Neoliberalismo con rostro humano* [*Twenty Years Later, Neoliberalism with a Human Face*]. Santiago: Catalonia.

Barrios, E.V. (2010) 'Estrategias de expansión y modos de gestión en Empresas Públicas de Medellín, EPM' ['Expansion Strategies and Management Modes in Medellín Public Enterprises'], *Estudios Políticos* (36): 141–65.

Brooks, A.L., S. Wang and J.R. Jambeck (2018) 'The Chinese Import Ban and its Impact on Global Plastic Waste Trade', *Science Advances* 4(6): eaat0131. http://doi.org/10.1126/sciadv.aat0131

Cahill, D. (2020) 'Market Analysis beyond Market Fetishism', *Environment and Planning A: Economy and Space* 52(1): 27–45.

Challcharoenwattana, A. and C. Pharino (2016) 'Multiple-criteria Decision Analysis to Promote Recycling Activities at Different Stages of Urbanization', *Journal of Cleaner Production* 137: 1118–28

Chang, H.J. (2002) 'Breaking the Mould: An Institutionalist Political Economy Alternative to the Neo-liberal Theory of the Market and the State', *Cambridge Journal of Economics* 26(5): 539–59.

Coase, R.H. (1960) 'The Problem of Social Cost', in C. Gopalakrishnan (ed.) *Classic Papers in Natural Resource Economics*, pp. 87–137. Basingstoke: Palgrave Macmillan.

Corporación Nacional de Medio Ambiente Región Metropolitana (2005) 'Estrategia de reciclaje de residuos sólidos domiciliarios de la Región Metropolitana' ['Strategy for Solid Household Waste Recycling in the Metropolitan Region']. Report. Santiago: Corporación Nacional de Medio Ambiente Metropolitana. http://metadatos.mma.gob.cl/sinia/articles-39506_pdf_reciclaje.pdf

Dávila, J. (ed.) (2012) *Urban Mobility and Poverty: Lessons from Medellín and Soacha*. London: Development Planning Unit, UCL; Bogotá: Universidad Nacional de Colombia.

European Commission (2015) 'Report on Separate Collection Schemes in the 28 Capitals of the EU'. Brussels: European Commission. https://ec.europa.eu/environment/waste/studies/pdf/Separate%20collection_Final%20Report.pdf

Fernanda-Tovar, L. (2018) 'Formalization of Organizations of Recyclers by Trade in Bogota: Reflections from Popular Economy', *Íconos. Revista de Ciencias Sociales* (62): 39–63.

Fernández, A.N. (2009) '¿Independencia o control?: los derechos sociales y los esfuerzos del ejecutivo por el control de la Corte Constitucional en Colombia' ['Independence or Control? Social Rights and Efforts from the Executive to Control the Colombian Constitutional Court'], *Revista de estudios políticos* (143): 129–61.

Fuentes, C. (2013) *El fraude* [*The Fraud*]. Santiago: Hueders.

Gárate Chateau, M. (2012) *La revolución capitalista de Chile (1973–2003)* [*The Chilean Capitalist Revolution (1973–2003)*]. Santiago: Ediciones Universidad Alberto Hurtado.

Garcia-Guadilla, M.P. and M. Hurtado (2000) 'Participation and Constitution Making in Colombia and Venezuela: Enlarging the Scope of Democracy?'. Conference paper for the Latin American Studies Association (LASA), Miami, FL (16–18 March).

Gilbert, A. (2012) 'De Soto's *The Mystery of Capital*: Reflections on the Book's Public Impact', *International Development Planning Review* 34(3): v–xviii.

Gille, Z. (2010) 'Actor Networks, Modes of Production, and Waste Regimes: Reassembling the Macro-social', *Environment and Planning A* 42(5): 1049–64.

Goldman, M. (2014) 'Development and the City', in F. Miraftab and N. Kudva (eds) *Cities of the Global South Reader*, pp. 54–65. London: Routledge.

Gómez Roldán, A. (2011) 'El movimiento de la séptima papeleta rente al referendo. Posición jurídica ante la Corte Constitucional de una generación de colombianos y colombianas que ayudaron a construir la Constitución Política de 1991' ['The Seventh Ballot Movement Facing the Referendum. Juridic Position before the Constitutional Court by a Generation of Colombians that Helped to Build the 1991 Political Constitution'], *Papel Político* 16(2): 365–80.

14677660, 2020, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/dech.12591 by Chile National Provision, Wiley Online Library on [02/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Goodfellow, T. (2017) 'Seeing Political Settlements through the City: A Framework for Comparative Analysis of Urban Transformation', *Development and Change* 49(1): 199–222.
Gregson, N. and M. Crang (2015) 'From Waste to Resource: The Trade in Wastes and Global Recycling Economies', *Annual Review of Environment and Resources* 40: 151–76.
Guibrunet, L. (2019) '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*. DOI: https://doi.org/10.3828/idpr.2019.6
Henao, J.F.S. (2012) 'Evolución y origen del concepto de "estado social" incorporado en la constitución política colombiana de 1991' ['Evolution and Origin of the Concept of "Social State" Incorporated in the 1991 Colombian Political Constitution'], *Ratio Juris* 7(14): 141–58.
Intendencia Región Metropolitana de Santiago (2009) 'Plan de Acción de Reciclaje Mesa Intersectorial "Santiago Recicla" Región Metropolitana Versión 6.0' ['Recycling Action Plan Intersectorial Board "Santiago Recycles" Metropolitan Region Version 6.0]. Report. Santiago: Intendencia Región Metropolitana de Santiago. www.scribd.com/document/60062682/Plan-de-Accion-de-Reciclaje-Mesa-Inter-Sec-to-Rial-Santiago-Recicla-Rm-2009
Joskow, P.L. (2007) 'Regulation of Natural Monopoly', in A. Mitchell Polinsky and S. Shavell (eds) *Handbook of Law and Economics* vol 2, pp. 1227–348. Amsterdam: Elsevier.
Khan, M. (2010) *Political Settlements and the Governance of Growth-enhancing Institutions*. London: School of Oriental and African Studies, University of London.
Laidley, T.M. (2013) 'The Influence of Social Class and Cultural Variables on Environmental Behaviors: Municipal-level Evidence from Massachusetts', *Environment and Behavior* 45(2): 170–97.
Landsberger, H.A. and T. McDaniel (1976) 'Hypermobilization in Chile, 1970–1973', *World Politics* 28(4): 502–41.
Livert, F. and X. Gainza (2018) 'Distributive Politics and Spatial Equity: The Allocation of Public Investment in Chile', *Regional Studies* 52(3): 403–15.
Maclean, K. (2015) *Social Urbanism and the Politics of Violence*. London: Springer.
Magni, A.A.C. and W.M.R. Günther (2014) 'Cooperatives of Waste Pickers as an Alternative to Social Exclusion and its Relationship with the Homeless Population', *Saúde e Sociedade* 23(1): 146–56.
McFarlane, C. (2012) 'Rethinking Informality: Politics, Crisis, and the City', *Planning Theory & Practice* 13(1): 89–108.
Medellín Cómo Vamos (2019) 'Informe de Calidad de Vida de Medellín, 2018' ['Quality of Life Report for Medellín, 2018']. Medellín: Medellín Cómo Vamos. www.medellincomovamos.org/download/documento-informe-de-calidad-de-vida-de-medellin-2018/
Millington, N. and M. Lawhon (2019) 'Geographies of Waste: Conceptual Vectors from the Global South', *Progress in Human Geography* 43(6): 1044–63.
Ministerio de Medio Ambiente (2016) 'Política de Inclusión de Recicladores de Base 2016–2020' ['Inclusion Policy for Waste Pickers 2016–2020']. Report. Santiago: Ministerio de Medio Ambiente, Government of Chile. https://mma.gob.cl/wp-content/uploads/2016/12/Politica-de-inclusion-de-recicladores-de-base.pdf
Ministerio de Medio Ambiente (2019) 'Registro de Emisiones y Transferencias de Contaminantes' ['Registry of Pollutant Emissions and Transferences']. Report. Santiago: Ministerio de Medio Ambiente, Government of Chile. www.retc.cl/
Morales, E., S. Levy, A. Aldunate and S. Rojas (1990) 'Erradicados en el régimen militar: una evaluación de los beneficiaries' ['Eradicated during the Military Regime: An Assessment of the Beneficiaries']. Working Paper 1–199. Ñuñoa: FACSO-Chile.
Moreau, V., M. Sahakian, P. Van Griethuysen and F. Vuille (2017) 'Coming Full Circle: Why Social and Institutional Dimensions Matter for the Circular Economy', *Journal of Industrial Ecology* 21(3): 497–506.
Murcia, J.D.L. and L.M.G. Daza (2008) 'La obligación de progresividad de los derechos económicos, sociales y culturales: el caso de los servicios públicos en Colombia' ['Compul-

14677660, 2020, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/dech.12591 by Chile National Provision, Wiley Online Library on [02/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

sory Progressiveness of Economic, Social and Cultural Rights: The Case of Public Services in Colombia'], *International Law: Revista Colombiana de Derecho Internacional* 6(12): 217–51.

Nielson, D.L. and M.S. Shugart (1999) 'Constitutional Change in Colombia: Policy Adjustment through Institutional Reform', *Comparative Political Studies* 32(3): 313–41.

North, D.C. (1990) *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.

O'Hare, P. (2018) '"The Landfill Has Always Borne Fruit": Precarity, Formalisation and Dispossession among Uruguay's Waste Pickers', *Dialectical Anthropology* (43) 31–44.

Palma, J.G. (2014) 'Has the Income Share of the Middle and Upper-middle Been Stable around the "50/50 Rule", or Has it Converged towards that Level? The "Palma Ratio" Revisited', *Development and Change* 45(6): 1416–48.

Peck, J. (2013) 'Disembedding Polanyi: Exploring Polanyian Economic Geographies', *Environment and Planning A* 45(7): 1536–44.

Peretz, J.H., B.E. Tonn and D.H. Folz (2007) 'Explaining the Performance of Mature Municipal Solid Waste Recycling Programs', *Journal of Environmental Planning and Management* 48(5): 627–50.

Pike, A. (2004) 'Heterodoxy and the Governance of Economic Development', *Environment and Planning A* 36(12): 2141–61.

Pizarro, G. and M. Jara (2015) 'El mapa de Chile del millonario negocio de la basura' ['The Map of the Millionaire Business of Waste in Chile']. Santiago: CIPER Chile. https://ciperchile.cl/2015/05/26/el-mapa-de-chile-del-millonario-negocio-de-la-basura/

Pontificia Universidad Catolica de Valparaiso (2006) *Estudio Caracterización de Residuos Solidos Domiciliarios en la Región Metropolitana* [*Study of Characterisation of Solid Household Waste in the Metropolitan Region*]. Chile: Pontificia Universidad Catolica de Valparaiso.

Quezada, A. (2016) 'Territorialidad, participación y conflicto en el proceso de cierre del relleno sanitario Lo Errázuriz (1984-2005)' ['Territoriality, Participation and Conflict in the Process of Closure of the Lo Errazuriz Landfill (1984-2005)']. PhD dissertation, University of Chile, Santiago.

Rehren, A. (1996) 'Corruption and Local Politics in Chile', *Crime, Law and Social Change* 25(4): 323–34.

Reyes, S. (2004) 'Santiago: la difícil sustentabilidad de una ciudad neoliberal' ['Santiago: The Difficult Sustainability of a Neoliberal City'], in C.de Mattos, M.E. Ducci, A. Rodríguez and G. Yáñez (eds) *Santiago en la Globalización ¿Una Nueva Ciudad?* [*Santiago in Globalization: A New City*?], pp. 189–218. Santiago: Eure Libros.

Rosa, E. and C. Cirelli (2018) 'Scavenging: Between Precariousness, Marginality and Access to the City. The Case of Roma People in Turin and Marseille', *Environment and Planning A: Economy and Space* 50(7): 1407–24.

Ruiz-Tagle, J. and E. López (2014) 'El estudio de la segregación residencial en Santiago de Chile: revisión crítica de algunos problemas metodológicos y conceptuales' ['The Study of Residential Segregation in Santiago de Chile: A Critical Review of Some Methodological and Conceptual Problems'], *EURE (Santiago)* 40(119): 25–48.

Saffon, M.P. and M. García-Villegas (2011) 'Derechos sociales y activismo judicial: la dimensión fáctica del activismo judicial en derechos sociales en Colombia' ['Social Rights and Judicial Activism: The Factual Activism Regarding Social Rights in Colombia'], *Estudios Socio-Jurídicos* 13(1): 75–107.

Santiago Recicla (2017) 'Estrategia Regional de Residuos Sólidos Región Metropolitana de Santiago 2017–2021' ['Regional Strategy for Solid Waste in the Santiago Metropolitan Region 2017–2021']. Santiago: Santiago Recicla. https://mma.gob.cl/wp-content/uploads/2018/03/PUBLIC-Estrategia-Reg-Residuos-Solidos-Digital.pdf

Sidique, S.F., S.V. Joshi and F. Lupi (2010) 'Factors Influencing the Rate of Recycling: An Analysis of Minnesota Counties', *Resources, Conservation and Recycling* 54(4): 242–49.

14677660, 2020, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/dech.12591 by Chile National Provision, Wiley Online Library on [02/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Skidmore, T.E. and P.H.C. Smith (2005) *Modern Latin America*. Oxford: Oxford University Press.

Sorroche, S. (2017) 'Experiencias replicables. Análisis de las vinculaciones entre cooperativas de cartoneros, agencias estatales y ONG en el Gran Buenos Aires' ['Analysis of Links between Cardboard Recycling Cooperatives, State Agencies and NGOs in Greater Buenos Aires'], *Revista de Estudios Sociales* (61): 58–68.

Tadesse, T. (2009) 'Environmental Concern and its Implication to Household Waste Separation and Disposal: Evidence from Mekelle, Ethiopia', *Resources, Conservation and Recycling* 53(4): 183–91.

United Nations (2016a) 'Sustainable Development Goals: Sustainable Development Goal 10 – Targets & Indicators'. UN Report. New York: United Nations. https://sustainabledevelopment.un.org/sdg10#targets (accessed March 2020).

United Nations (2016b) 'Sustainable Development Goals: Sustainable Development Goal 12 — Targets & Indicators'. UN Report. New York: United Nations. https://sustainabledevelopment.un.org/sdg12#targets (accessed March 2020).

United Nations (2019) 'Work Plans for Tier III Indicators'. New York: United Nations. https://unstats.un.org/sdgs/tierIII-indicators/

Valdivia Ortiz de Zárate, V. (2011) 'Al rescate del municipio. La síntesis ideológica de la dictadura pinochetista' ['To the Rescue of the Municipality. The Ideological Synthesis of the Pinochet Dictatorship']. Revista Observatorio Latinoamericano, Dossier Chile 8.

Valenzuela, E. (2015) *Descentralización ya: conceptos, historia y agenda* [*Decentralization Now: Concepts, History and Agenda*]. Santiago: RIL Editores.

Valenzuela-Levi, N. (2019a) 'Do the Rich Recycle More? Understanding the Link between Income Inequality and Separate Waste Collection within Metropolitan Areas', *Journal of Cleaner Production* 213: 440–50.

Valenzuela-Levi, N. (2019b) 'Factors Influencing Municipal Recycling in the Global South: The Case of Chile', *Resources, Conservation and Recycling* 150: 104441. DOI: https://doi.org/10.1016/j.resconrec.2019.104441

Valenzuela-Levi, N. (2020) 'The Written and Unwritten Rules of Internet Exclusion: Inequality, Institutions and Network Disadvantage in Cities of the Global South', *Information, Communication & Society*. DOI: http://doi.org/10.1080/1369118X.2020.1716037

Vasconi, P. (2004) *Residuos Sólidos Domiciliarios en Chile: Análisis y Propuestas* [*Solid Waste Management in Chile: Analysis and Proposals*]. Santiago: Terram.

Vásquez, Ó. (2011) 'Gestión de los residuos sólidos municipales en la ciudad del Gran Santiago de Chile: desafíos y oportunidades' ['Management of Municipal Solid Waste in the City of Greater Santiago in Chile: Challenges and Opportunities'], *Revista Internacional De Contaminación Ambiental* 27(4): 347–55.

Vásquez, Ó., A. Álvarez, J. Silva and A. Pincheira-Muga (2014) 'Towards the Estimation of Demand for Recycling in Chile: The Case of Santiago', *Resources, Conservation and Recycling* 82: 94–102.

Nicolás Valenzuela-Levi (e-mail: nv284@cam.ac.uk) is a PhD researcher in the Department of Land Economy at the University of Cambridge, Cambridge, UK. His mixed-methods research covers the link between income inequality and network technology adoption, using theoretical approaches from institutional political economy and social environmental science. He has recently published several papers focusing on transport, waste and broadband internet in *Information, Communication & Society* (2020), *Resources, Conservation & Recycling* (2019), *the Journal of Cleaner Production* (2019), and *Sustainable Cities & Society* (2018).

14677660, 2020, 4, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/dech.12591 by Chile National Provision, Wiley Online Library on [02/10/2024]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License