

# The circular economy can have oligarchic tendencies in socially-unequal countries: evidence from Chile.

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## Analysis

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# Abstract

The Sustainable Development Goals include both increasing recycling rates and reducing socioeconomic inequalities. However, existent research lacks attention to the link between advancing towards the circular economy and concentration of wealth and political power. This article analyzes the case of Chile, one of the most income-unequal countries in the world, which between 2014 and 2020 implemented a registry of polluters, an extended producer responsibility legislation, and called for elections to establish a Constitutional Convention to set a new rule of law for the country. The authors of this study innovate by analyzing both economic concentration and political linkages among waste valorization companies. The results show a tendency towards higher concentration in already concentrated waste markets, and a continuous rise in the share of the valorisation market by politically-linked companies. The coexistence of oligopoly, oligopsony and oligarchic tendencies should be considered when analyzing the circular economy in other countries.

# Full Text

Waste is not just a burden for the environment but also an attractive business. Although waste disposal has long ago been a profitable sector, materials inside waste are increasingly valuable for repurposing, reutilization, and recycling. Waste valorization today entails a quest for extracting, processing, and profiting from increasingly valuable materials, as happened before with other resources such as minerals and hydrocarbons. In such a context, some scholars have talked of waste as a 'resource frontier'<sup>1</sup>.

Thus, transitions from a linear to a circular economy will necessarily involve complex economic, social, and political issues<sup>2</sup>. This is particularly relevant in a time when, apart from environmental sustainability, societies deal with the burden of income and wealth inequality<sup>3, 4, 5, 6</sup>. Among economists, Stiglitz<sup>3</sup> considers that part of the price of inequality is having elites that do not take risks and therefore are not inclined towards innovation. Similarly, Palma<sup>6, 7</sup> claims that what the rich do with their share is key for sustaining economic development and generating productivity gains, and Piketty<sup>4</sup> has concentrated on the share of the top earners and the consequences that concentration of wealth has for the sustainability of capitalist economic development. In this line, other studies have illustrated the specific mechanisms by which the super rich influence the 'rules of the game'<sup>8, 9</sup>.

In this context, we aim to interrogate the interrelations between two relevant phenomena for climate change mitigation: advancing towards the circular economy and confronting socioeconomic inequality. Specifically, we study the Chilean case, a country from the Global South that exhibits three specific characteristics. First, it is known for its high levels of income and wealth inequality<sup>6, 7</sup>. Second, between 2014 and 2020 Chile experienced a set of regulatory transformations in the waste sector: a new Ministry of the Environment started collecting data on polluters in 2014, the congress passed an Extended Producer Responsibility law in 2016, and an executive decree defined the first official recycling goals in 2020<sup>10</sup>. Third, in 2020 Chile called for elections to establish a Constitutional Convention that is expected

to create a new constitution and thus change the rule of law in the country. The election of the members of this body was accompanied by a public registry of donors<sup>11</sup>, which allows us to track the political linkages of company owners and executive directors.

Our research addresses three key concepts: oligopoly, oligopsony, and oligarchy. Oligopoly occurs when a market is characterized by reduced competition between a small number of firms on the supply side, which usually means the operation of cartels<sup>12</sup>. Oligopsony describes a situation in which those who buy have market power due to a small number of actors on the demand-side<sup>13</sup>. In economics, oligarchy has been defined as a self reproduced minority that concentrates both political influence and profits from the economy<sup>14</sup>.

## Results

Thanks to the available data in the Chilean Registry of Emissions and Transport of Pollutants<sup>10</sup> we accessed tons of material generated and valorized, type of materials, and names of the companies both on the generation and valorization sides. After a web-based collection of names from ownership and management of the companies with above one percent share of the total tons valorized, we were able to link firms with donations to candidates for the Constitutional Assembly during the election held on the 16th of May 2021. We defined a politically linked company as one whose owners, board members, and/or CEOs donated for the campaigns.

Between 2014 and 2019, valorization of commercial and industrial waste in Chile increased both in terms of total tons and percentage of total waste valorized (Figure 1). The percentage of valorized waste reached over 31 percent in 2018 and 2019. However, this increase occurred in the context of high levels of concentration on both the generating and valorizing sides. By 2014, 10 percent of companies concentrated 90 percent of the generation of valorized material. Similarly, 10 percent of companies shared 60 percent of the valorization of materials. In both cases of generation and valorization, concentration increased in the period, which can be observed using indicators such as the Gini coefficient and share of total valorized material (Figure 2). Attention towards concentration within the top 10 percent also shows increases in hiper-concentration, the most notable case being generation, for which 5 percent of companies generated 90 percent of total valorized materials by 2019 (Figure 2).

Additionally, we were able to trace the share of materials of those firms whose executives or owners donated for the Constitutional Convention campaign. Both tons valorized and the share of the total material valorized increased between 2014 and 2019, with a peak in 2018 (Figure 3). In this period, the share of these companies grew from 30 to 40 percent of the demand for valorizable materials.

## Discussion

The results on the links between economic concentration and oligarchic tendencies in the circular economy sector in Chile should warn the international community about the risk of regulatory capture

when implementing environmental policies, particularly in already socially unequal countries. The data not only shows a concentrated market at the beginning of the studied period, in 2014, but also tendencies towards increasing this already high market concentration afterwards. In the case of waste management regulation and environmental policy within the Chilean government, this period is one of implementation of new rules and controls. While economic and political concentration was increasing in the industry, an Extended Producer Responsibility law was introduced to the parliament at the end of 2013 and passed by mid 2016. Yet, the executive decrees that implemented recycling goals were signed only in June 2020. In other words, the observed process of increase in concentration and rise in influence of politically-linked companies in the Chilean waste valorization sector between 2014 and 2019 occurred in preparation for - and while discussing the - new regulations and requirements for these same companies. Three main agendas emerge.

First, **the many dimensions of the Sustainable Development Goals do not only require data on each goal, but also on interlinks between the sectors involved in them.** Advance in one goal could be associated with retreat in others. This is particularly relevant in regard to issues related to inequalities and climate justice. The case of Chile exhibits the concurrence of different elements, such as new environmental regulations and data, as well as the elections for a Constitutional Convention, all of which allowed a unique chance to cross-analyze waste valorisation and political influence of companies. Similar findings to those in this study could not be just limited to cases such as Chile, but a wider phenomena, in which case research and policy attention would be much needed.

Second, **further theoretical and empirical exploration is needed in the convergence of oligopoly, oligopsony and oligarchic tendencies in key economic sectors regarding climate and environmental policy.** For instance, the economic literature has discussed the simultaneous presence of oligopsony-oligopoly but lacks attention to political linkages<sup>15,16,17</sup>. In the specific case of studies on waste valorization, the literature also lacks simultaneous attention to oligopoly, oligopsony, and oligarchy. For instance, monopsony has been observed in car remanufacturing<sup>22</sup>, and monopoly of supply of specific materials has been observed alongside competition among recyclers<sup>23</sup>. Yet, an overarching reality is the lack of analytical attention to the role of politics. Scholars should use available conceptual and empirical tools to incorporate political power and regulatory capture as key variables to analyze market concentration.

Third and finally, **ecological economists should embrace the mission of studying the consequences that concentration can have on the advance towards the circular economy.** By the time of this study, there were no clear answers to the question of advantages and disadvantages produced by simultaneous oligopoly and oligopsony in the waste valorisation sector. Some models for recycling markets under Extended Producer Responsibility regulations have highlighted the significance of cartels and lack of competition<sup>17</sup>, as well as possible economic concentration due to the incremental adoption of environmental technologies<sup>18</sup>. Furthermore, coordination between firms and sectors to achieve circularity could result in industrial symbiosis<sup>21</sup>, and concentration may be fuelled by the advantages of

coordination in business-to-business relationships in the waste valorization sector<sup>19,20</sup>. However, the existent studies on these issues do not explore the simultaneity of oligopoly and oligopsony, which leaves a research gap that needs to be filled in order to have a more pragmatic approach to the problem of concentration in the circular economy.

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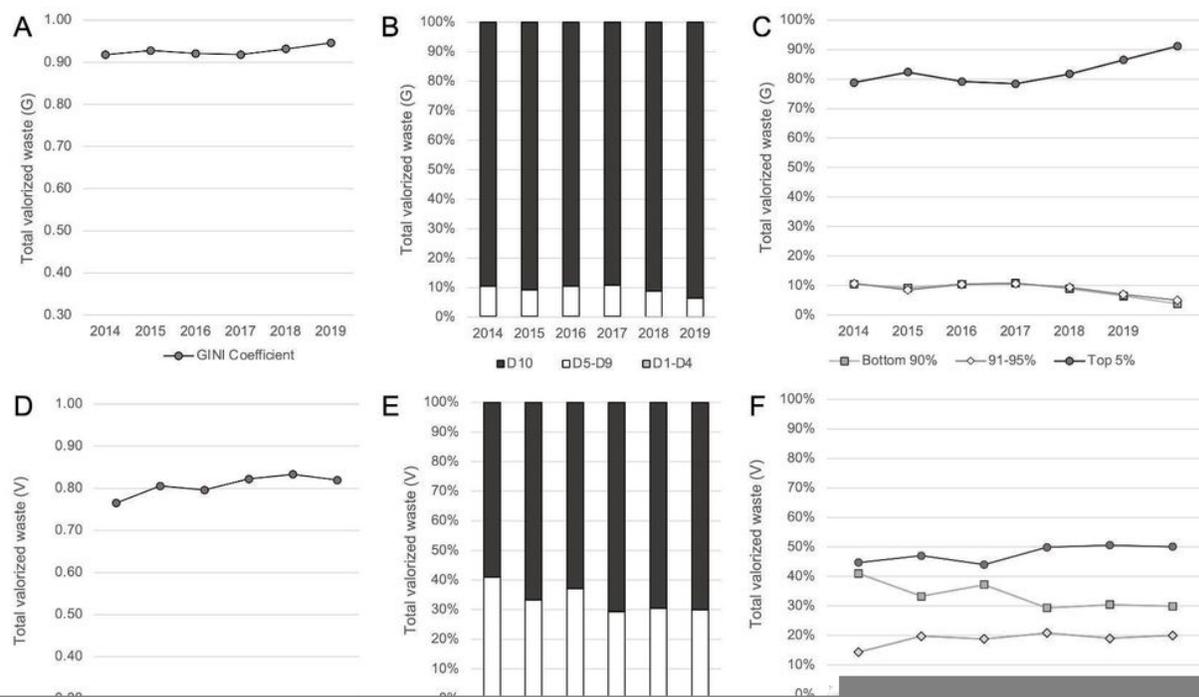
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## Figures

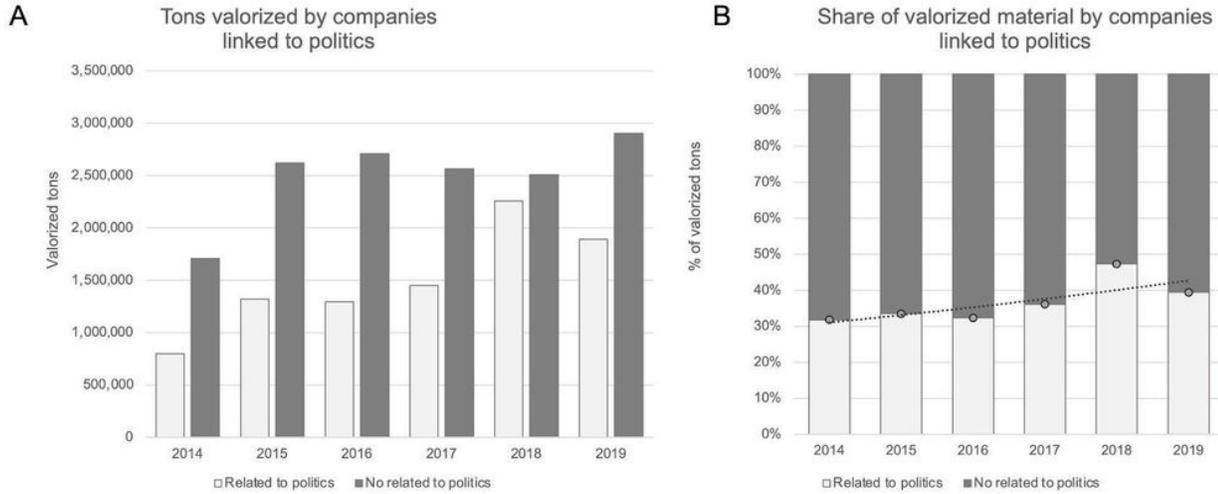
### Figure 1

**Waste generation and valorization of industrial and commercial (non residential) waste in Chile.** (A) Total waste generation measured in Tons. (B) Valorization measured in total Tons and percentage of total generation.



**Figure 2**

**Distribution and concentration measures of generation and destination of valorized waste in Chile.** (A) Gini coefficient for generation. (B) Share of generation by groups of deciles. (C) Share of generation by the bottom 90 percent, percentiles 91 to 95, and top 5 percent. (D) Gini coefficient for valorization. (E) Share of waste valorization by groups of deciles. (F) Share of waste valorization by the bottom 90 percent, percentiles 91 to 95, and top 5 percent.



**Figure 3**

**Commercial and industrial waste valorization companies in Chile and their link to politics.** (A) Total tons valorized waste by companies linked and not linked to politics. (B) Percentage of tons valorized waste distributed between companies linked and not linked to politics.

## Supplementary Files

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