

# Indigenous representation and participation: The case of the Chilean Mapuche

Pedro Cayul <sup>a,\*</sup>, Alejandro Corvalan <sup>b</sup>

<sup>a</sup> Department of International Economics, Graduate Institute, Geneva, Switzerland

<sup>b</sup> Department of Industrial Engineering, Universidad de Chile, Chile

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## ABSTRACT

According to the empowerment hypothesis, minority politicians encourage minority participation. The relationship between representation and participation has been extensively analyzed for several ethnic minorities and women, but there are no studies for indigenous populations in Latin America. This paper evaluates the link between descriptive representation and electoral registration of Mapuche, a deprived indigenous minority from the South of Chile that is as large as ten percent of the total population. We implement a panel estimation that controls district effects using a national dataset of more than three million new registrations in Chile for five municipal elections. We found that Mapuche mayors are significantly associated with higher Mapuche participation during the first year of the mayoral period. Since registration in Chile occurs throughout the representatives' term, and we use registrations long before the next election, our evidence suggests that office-holding affects participation by channels other than electoral campaigning. To shed light on the channels, we describe the symbolic and substantive mechanisms used by Mapuche mayors to empower their communities.

## 1. Introduction

Descriptive representation refers to the extent to which a representative resembles those being represented (Pitkin, 1967). The presence of minority officeholders plays a crucial role in the incorporation of disadvantaged groups into the political arena. Minority representation strengthens representational links, promotes positive attitudes toward the political system, and encourages minority participation (Banducci et al., 2004). The relationship between representation and participation has been extensively analyzed for U.S. minorities like Blacks (Bobo and Gilliam, 1990; Gay, 2001; Keele et al., 2017), Latinos (Pantoja and Segura, 2003; Barreto, 2007; Rocha et al., 2010; Henderson et al., 2016; Valenzuela and Michelson, 2016), Asian-Americans (Sadhvani, 2020) and for women as well.<sup>1</sup>

No studies, however, have analyzed the role of descriptive representation in participation in the case of indigenous populations in Latin America. Admittedly, native communities have some particularities that make them different from those groups. Indigenous people have different claims than other ethnic minorities because of their colonial heritage, shaping their preferences not for incorporation but for self-determination (Van Cott, 2007; Williams and Schertzer, 2019). Another difference arises from the attachment to the land and the consequent

local identification that indigenous peoples have (Assies and Gundermann, 2007; Huyser et al., 2017). Consequently, it is unclear whether incorporated representatives foster participation. Furthermore, if this link exists, it is likely more visible at the local level.

This paper studies the consequences of descriptive representation for a politically active indigenous group, the Chilean Mapuche. The Mapuche is a minority as large as 10 percent of the country's population, socially and economically deprived, but with sizeable representation at the local level. We study if a Mapuche mayor's election affects Mapuche's new voter registrations in that municipality during the mayoral term from 1992 to 2008. During this period, Chile had a voluntary registration rule, but voting was mandatory for those registered. As turnout is not available at the individual level, registration is the best alternative to measure political engagement among Mapuche. As a second distinctiveness, the Chilean registration process was continuous over time, so enrollment for voting could be done not only for elections but at any time. These two traits allow us to observe participation throughout the representatives' term.

We collect a novel data set on more than three million new registrations in Chile for five municipal elections, and we use a surname strategy to identify Mapuche voters and politicians. Exploiting the benefits of the registration rule, we study the effect of representation

\* Corresponding author.

E-mail address: [pedro.cayul@gmail.com](mailto:pedro.cayul@gmail.com) (P. Cayul).

<sup>1</sup> See Wolbrecht and Campbell (2007), Bhalotra et al. (2018) and Hinojosa and Kittilson (2020).

on registrations long before the next election. We found that Mapuche mayors' election is significantly associated with increasing Mapuche new registrants during the first year of the mayoral period, just before any other election. In addition, we consider the entire mayoral period, including registrations for subsequent elections in which several Mapuche mayors stand for reelection. The effect is also positive and similar in magnitude to the one we get for the early non-electoral period.

In their seminal article about the positive role of African American mayors in the participation of this group, [Bobo and Gilliam \(1990\)](#) pointed out a relevant concern when studying the empowerment hypothesis. When concluding, they acknowledge that an alternative explanation of their findings is that "black empowerment is the outcome of higher participation brought about by registration and turnout drives when a viable black candidate emerges" (p.387). Similarly, [Leighley \(2001\)](#) mentions that descriptive representation increases black voter turnout because of the effect of political campaigns made by black candidates, highlighting the relevance of separating the impact of empowerment from those associated with candidates. This distinction is relevant not only for empirical identification but also for the policy implications of the empowerment hypothesis, given that affirmative action imposes conditions on either candidates or representatives ([Htun, 2004](#)).

As our study measures participation as electoral registration, there exists the possibility that the effect of descriptive representation is confounded with the electoral campaign effect of Mapuche candidates in the previous or the next election. To inoculate our results as far as possible from these electoral effects, we use new registrants who did not participate in the past election and only in the early year of the mayoral period. Admittedly, we cannot control all the consequences of Mapuche candidates. In Chile, mayors act as brokers that mobilize voters for national elections one year after the municipal one ([Corvalan et al., 2018](#)). While we control for the party of the mayors to control for this effect, there could also be the possibility that most mayors, Mapuche or not, run for reelection and thus mobilize voters from the beginning of their term in office. With those caveats, our evidence is at least suggestive that office holding affects participation by channels other than the electoral mobilization of Mapuche candidates.

To shed light on the specific mechanisms of indigenous empowerment, we relate descriptive representation with other forms of representation. On one side, officeholders create symbolic associations towards minorities ([Hayes and Hibbing, 2017](#)). On the other, their representation can also be substantive, to the extent that they promote effective empowerment policies, which might affect political participation ([Jeong, 2013](#)). Interestingly, the consequences of symbolic representation should be more immediate than those of substantive representation. As our estimations show effects during the first year and the entire mayoral term, we conjecture that both types of representation might play a role in the Mapuche case.

Using qualitative evidence from case studies, we discuss whether the presence of Mapuche mayors is associated with symbolic and substantive mechanisms empowering indigenous groups. We first notice that Mapuche officeholders reshaped the municipal sphere with concrete ethnic symbols, incorporating their language and promoting new iconographic presences in the commune. Existing surveys show that the Mapuche people are satisfied with seeing their leaders as officeholders. Nevertheless, Mapuche mayors went beyond symbolic representation and established substantive incorporation forms. They used the structure of the state apparatus to incorporate Mapuche communities into the decision-making process. Specifically, they changed the legal status of indigenous communities to include them in administration bodies, empowered community leaders as intermediaries, and promoted new sub-territorial divisions to create areas with strong Mapuche majorities. In brief, the empowerment of the indigenous communities at the municipal level was a primary objective of the Mapuche local governments. We conclude that descriptive representation enforces symbolic and substantive representation, consistent with the minority empowerment hypothesis.

## 2. Literature

This work aims to make two contributions to the literature. The first is to extend the study of descriptive representation and participation for the case of indigenous populations in Latin America. The second is to consider the symbolic and substantive effects of descriptive representation, as opposed to the consequences of electoral campaigning on minority groups.

### 2.1. Indigenous representation and participation

When analyzing voting, most of the literature associates indigeneity with low levels of participation both for cross countries analysis ([Martinez i Coma and Nai, 2017](#)) or for specific cases like Guatemala ([Lehoucq and Wall, 2004](#)) or Mexico ([Hiskey and Goodman, 2011](#)). There are three leading causes explaining these findings.

The first explanation for low participation among indigenous people suggests that they suffer more discrimination at daily and structural levels, which correlates with lower turnout rates ([Oskooi, 2020](#); [Morales Quiroga, 2022](#)).

The second reason is that indigenous peoples vote less due to the socioeconomic disadvantages they face. Some studies have pointed out that family income, age, household size, and residential stability are determinants of their lower turnout rates among American Indians and Alaska Natives ([Huyser et al., 2017](#)), while other analyzes the electoral size of indigenous peoples as a determinant of lower participation ([Armstrong et al., 2023](#)). Socioeconomic conditions can also have an indirect impact on turnout. Inequality, for example, generates a lower perception of electoral fairness, which can discourage the participation of indigenous peoples in the political system ([Flesken and Hartl, 2020](#)).

The structure of the political system is the third explanation of indigenous lack of engagement analyzed in the literature. [Madrid \(2005\)](#) argues that a high proportion of the indigenous population in Latin American countries is associated with higher party system fragmentation, mainly because traditional parties have failed to represent indigenous peoples. In this context, a natural response of indigenous peoples is the creation of their political parties to dispute the political arena ([Yashar, 2005](#); [Van Cott, 2007](#)).<sup>2</sup>

This work discusses whether descriptive representation, the mere identity of politicians other than parties, also determines indigenous participation. Co-ethnic representatives have an effect in the case of Blacks, Latinos, or Asian-Americans ([Bobo and Gilliam, 1990](#); [Barreto et al., 2005](#); [Fraga, 2016](#); [Sadhvani, 2020](#)). However, indigenous people have some particularities that make them different from those other groups.

[Williams and Schertzer \(2019\)](#) point out that indigenous peoples have different claims than other ethnic minorities mainly because of their colonial heritage. A similar argument is done by [Van Cott \(2000\)](#), who compares the claims of indigenous peoples about self-determination with the situation of Afro-Americans, a group seeking integration into the system. A second difference arises from the attachment to the land and the consequent local identification that indigenous peoples have. Although most of the articles mentioned in this discussion focus on national elections, some have pointed out the relevance of the local sphere for indigenous peoples ([Huyser et al., 2017](#); [Armstrong et al., 2023](#)).

Consequently, it is unclear whether incorporated representatives foster participation. Furthermore, if this link exists, it is likely more visible at the local level.

<sup>2</sup> For instance, the irruption of an indigenous party was triumphant in Bolivia with the national election of Evo Morales as president in 2005, which increased regime support among indigenous peoples in Bolivia ([Madrid and Rhodes-Purdy, 2016](#)).

## 2.2. Officeholders, candidates, and participation

Many studies have theorized the relationship between descriptive representation and political participation among descriptively represented groups (Mansbridge, 1999; Burns et al., 2001). The first argument for a positive relation is political inclusion. The political process typically excludes minority groups, and descriptive representation signals that they are no longer outside the electoral domain. A second rationale is related to information. Since citizens increase communication with the members of their groups, minority politicians may increase participation by affecting political knowledge among descriptively represented groups. Thirdly, descriptive means are likely to imply substantial representation. In this case, participation increases, given that the possibility of achieving political goals through elections is higher.

The minority empowerment hypothesis establishes that by their mere appearance or symbolic gestures, politicians communicate to their co-ethnic constituents that the government will be more responsive to their needs. Accordingly, minority representation encourages political participation because it fosters more positive attitudes towards institutional politics and increases political knowledge among minorities (Banducci et al., 2004).

The effect of minority empowerment on participation points out the role of politicians, but to get into office, representatives had to be previous candidates. Minority candidates also affect minority participation because they target the electoral mobilization of similar groups. In the US, literature has studied the effect of candidates on the turnout for African-Americans (Washington, 2006; Keele et al., 2017), Latinos (Barreto, 2007) and Asian-American minority (Sadhvani, 2020). Consequently, empowerment and campaigning effects are difficult to disentangle.

Empirically, it is hard to separate officeholders' and candidates' effects. Bobo and Gilliam (1990) offers empirical evidence that US cities with African American mayors are associated with greater participation of their group, but they acknowledge that the role of candidates is an alternative explanation to these findings. They discard this possibility because minority politicians have long been in office, and the short-term effects of campaign mobilization are likely diluted over time. Similarly, Leighley (2001) mentions that descriptive representation increases black voter turnout because of the impact of political campaigns made by black candidates, while Griffin and Keane (2006) specifies that their theoretical mechanism for the role of descriptive representation is candidacy, and the empirical exercise "requires the assumption that these MCs stood for reelection" (p.1002). Clark (2014) indicates that descriptive representation might affect symbolic, substantive, and electoral campaigning participation.

Karp and Banducci (2008) indicate that the presence of women as candidates and officeholders may serve as a powerful symbolic cue, but they are not necessarily the same: "The presence of female candidates suggests that women can compete for political power, but the presence of women in elected bodies suggests that they play a role in decision making and are able to influence policy outcomes" (p.106). Similarly, in his study about the role of female politicians on voting and candidacy, Broockman (2014) explicitly states that his regression discontinuity approach identifies both candidates and politicians' effects, admitting that "this is a weakness of the approach for disentangling the causal effects of female officeholding and candidacy were they to exist" (p.193, footnote 7). Several other works, nonetheless, consider representativeness as the combined effect of politicians and candidates. In addition, officeholders' and candidates' effects are mutually reinforcing. Bhalotra et al. (2018) show that the event of a woman winning office in a competitive electoral process increases the share of female candidates in the subsequent election, but the effect is driven by incumbent women being more likely to run for reelection. Accordingly, officeholding may also explain candidacy, making it more difficult to identify both determinants separately.

Our work tries to disentangle the direct role of descriptive representation from the consequences of electoral campaigning. While our identification strategy does not allow us to resolve the question unambiguously, our results are nonetheless informative as to whether office holding affects participation by channels other than the electoral mobilization carried out by candidates of minority groups.

## 3. The Mapuche

The Mapuche are the principal indigenous population in Chile. Today, 1.7 million Chileans identify as Mapuche, which corresponds to 10% of the country's population. The Mapuche encompass several ethnic groups with a common religious structure and language: the Mapudungun.<sup>3</sup>

While many Mapuche have migrated to urban areas, a significant group live in their historical territories. These ancient territories are in the South of Chile, specifically in Bio-Bio, La Araucania, Los Rios, and Los Lagos. The following map displays their current population weights in those regions (see Fig. 1).

Historically, the Mapuche people struggled fiercely against the Spaniards, and after Independence, they continued fighting against the Chilean state. At the end of the nineteenth century, they were confined to communities covering less than 10% of their original domain (Bengoa, 2000). Throughout the twentieth century, the Mapuche have continuously claimed their previous land, along with political and social recognition. Today, they still maintain a self-determination conflict with the Chilean state (Cayul et al., 2022).

The Mapuche are one of the most disadvantaged populations in the country (Agostini et al., 2010). They are a population group with low levels of schooling and real wages and high unemployment and poverty rates. For instance, in 2015, the poverty rate for Mapuche was about 24%, twice the rest of the country, and their years of schooling was 9.3 against 10.6 of the entire population.<sup>4</sup>

### 3.1. Mapuche political representation

The Mapuche are also politically deprived. National institutions have systematically underrepresented them. Since 1989, only four Mapuche have been elected to Congress. In this scenario, indigenous actors decided strategically to dispute and occupy the local governments to increase their presence in the territories.

Indeed, the shift towards local and municipal representation was characteristic of the entire indigenous movement in Latin America in the early 90s (Assies and Gundermann, 2007).<sup>5</sup> Several features contribute to this process, such as the progressive importance of local governments in the new neoliberal state, the reevaluation of the local as a place of identity, and the indigenous reemergence in Latin America. Numerous indigenous groups on the continent have turned to the electoral process to control the municipalities. In many cases, the way of accessing local governments was done through ethnopolitical movements that tried to increase the ethnic presence in the municipal political space.

In Chile, the scenario for the local competition was particularly appealing, given that the Chilean dictatorship strengthened municipalities and transferred several administrative and political duties to them. Consequently, in the late 80s, the Mapuche movement identified the municipalities as strategic targets for political competition (Mariman, 1992). The Mapuche movement explicitly declared that municipalities

<sup>3</sup> In this work, we use Mapuche as a plural word, as in Mapudungun; this is a common practice in the related academic literature.

<sup>4</sup> CASEN survey, 2015.

<sup>5</sup> However, in the next decade, several indigenous movements have opted for political participation at the national level, as is notoriously in the case of Ecuador and Bolivia.

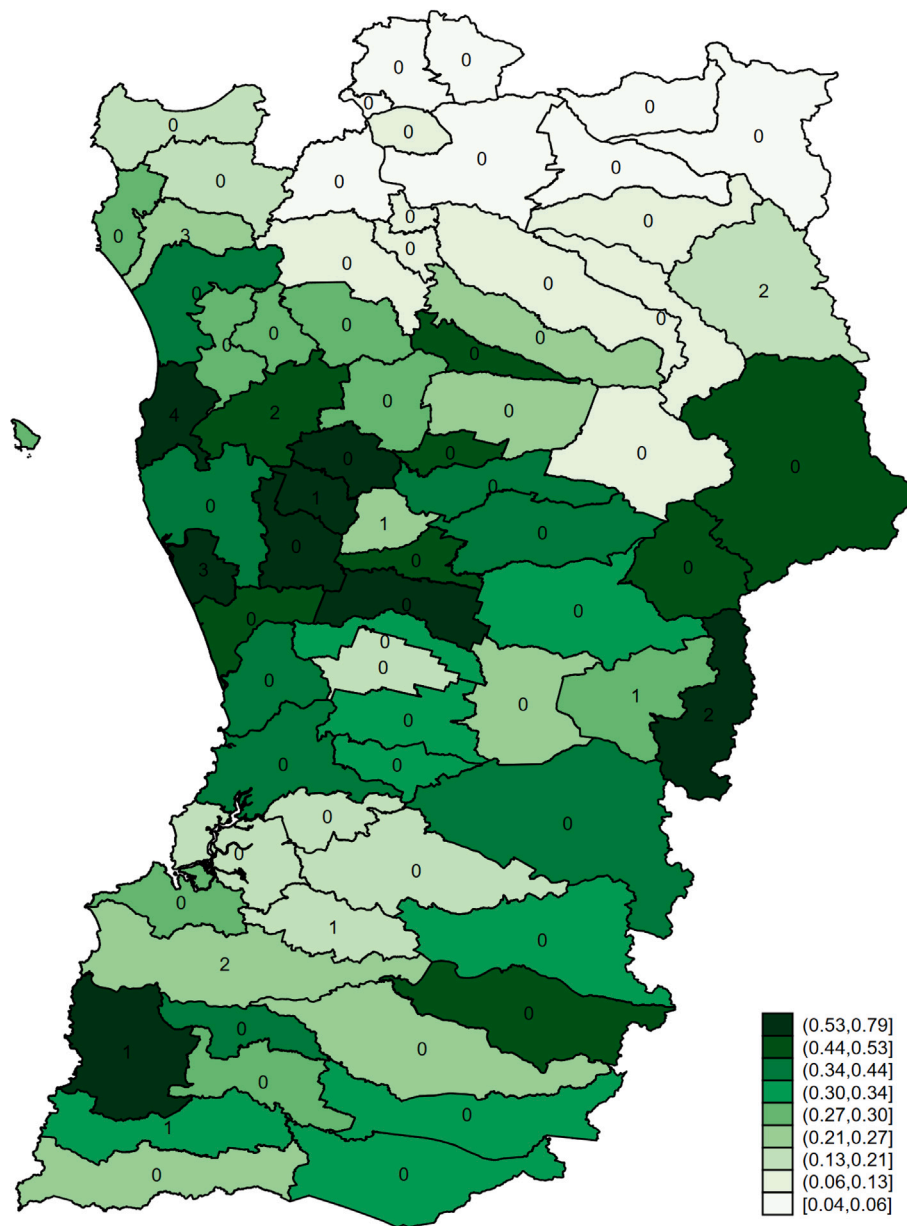


Fig. 1. Regional colors indicate the Mapuche population shares; regional numbers are the periods with Mapuche mayors. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

were places to develop, promote, and extend their political action (Foerster and Vergara, 2001; Cayuqueo, 2006). One of the prominent figures of the Mapuche movement, the former activist and current mayor Adolfo Millabur, explains that “Municipalities have an enormous influence in the local life of people” and in this sense, “it is important to control them to create a link between Mapuche aspirations and local governments”.<sup>6</sup>

Accordingly, since 1990, Mapuche has increased their number of candidates, votes, and elected mayors in municipalities with a high percentage of the Mapuche population (Cayuqueo, 2006). During this period, several Mapuche politicians observed that they could effectively contend with the non-Mapuche forces in local elections. While in 1992, 4 mayors and 48 municipal council members were Mapuche, in 2021, those figures increased to 15 mayors and 140 council members. Mapuche mayors became a recognized voice that built bridges between

the national government and the movement. In 2013, they funded the “Association of Municipalities with Mapuche Mayors” (AMCAM). Several scholars claim that Mapuche representation at the local level has pervasive effects, increasing the political interest of Mapuche and empowering the indigenous communities (Espinoza, 2015).

#### 4. Data and empirical strategy

##### 4.1. The Chilean registration system

From 1990 to 2011, Chile had a peculiar registration system. First, registration was voluntary, but voting was compulsory for those registered. The obligation to vote operated in Chile despite not strictly enforcing the requirement. Fines were low, infrequent, and often not even imposed. However, the citizens obeyed the rule. For instance, three-quarters of the nonvoting registered citizens went to registration offices to “excuse” themselves in the aftermath of the 2001 election, giving as some of the legal reasons for not voting either the loss of

<sup>6</sup> Quoted from Foerster and Vergara (2001), p.4,5.

their identification papers or being at least 200 km away from their respective polling stations on election day. For the period under study, Chile was classified as a country with high compliance with compulsory voting (see, e.g., IDEA n.d.).

Admittedly, not all registered citizens go to the polls. Turnout over registration ranged between 85 and 90% for local elections. However, abstention was higher for old registrants, who had been enrolled for a long time and then decided not to vote. On the contrary, new registrants registered precisely because they wanted to vote in the next election. For the 2009 Presidential election, the correlation across municipalities between the number of registrations and votes was 99%.

As a second distinctiveness, the Chilean registration process was continuous over time. Registration offices opened three months after elections and remained open until three months before the next. Therefore, we can observe registration rates at any time during that period. Specifically, we may consider registrations *between* elections. Using new registrations in the early years of an electoral period, we attenuate the possible effects of candidates on the participation decision.

Thirdly, registration offices closed before the electoral candidates were nominated. As we said, registration was only possible until three months before an election, and the candidates must sign up once voting registration is closed. Accordingly, unregistered citizens had limited information about the candidates when deciding whether to register to vote. While voters could have some personal forecasts about the candidates, the law significantly contributed to reducing the effect of candidates' mobilization.

#### 4.2. Municipal elections, voters and politicians

Municipalities are the smallest administrative units in Chile.<sup>7</sup> Currently, there are 345 of them. Municipalities are ruled by a mayor, who holds executive power, and a municipal council. The council and the mayor were elected in periodic elections every four years since 1992,<sup>8</sup> with no restriction for reelection. Until 2000, the entire council was elected by a proportional system, and the council appointed one of its members as mayor; since 2004, mayors have been elected directly by plurality rule. The registration system we described changed for the 2012 municipal election, becoming automatic for those above 18 years.<sup>9</sup> Accordingly, we study the first five municipal elections from 1992 to 2008.

We collect data on registration from the Chilean Electoral Office, SERVEL. The data contains information on the latest registration of 8,120,440 registered between 1987 and 2011. In particular, we have complete details on registration for all the municipal elections in our sample from 1992 to 2008. Secondly, we collect data about candidates and mayors, also from SERVEL. For each candidate, we have the following information: name, party, and coalition, number of votes, and whether he was elected or not. That is, we have information about all elected council members and mayors.

These two data sets provide complete names for registered voters and politicians but do not provide information on whether voters or politicians are Mapuche. Following the standard procedure in this literature,<sup>10</sup> we use a surname strategy to overcome this problem: we define an individual as Mapuche if at least one of his surnames is a Mapuche surname. The use of surnames to recognize indigenous people in Chile is not new. In this work, we use a fine-grained data set for surnames. Paineman (2011) provides a catalog with 8190 Mapuche

<sup>7</sup> A municipality is much like a county in the United States, except it has a single administration.

<sup>8</sup> The first municipal election in the post-authoritarian period took place in 1992, two years after democracy was re-established in Chile in 1990.

<sup>9</sup> At the same time, voting changed from compulsory to voluntary.

<sup>10</sup> See, for instance, Barreto (2007), Fraga (2016), Henderson et al. (2016) and Sadhwani (2020).

surnames from a historical analysis of the “Títulos de Merced” given to Mapuche at the end of the 19th century,<sup>11</sup> and correcting the errors and distortions that surnames have experienced since then. The use of surnames is mandatory, given that data on political programs and campaigns is very scarce, and surnames are a good proxy for those politicians who raise Mapuche vindications. Espinoza (2015) interviewed 22 mayors with Mapuche surnames, finding that 20 include ethnic demands in their electoral campaigns.

#### 4.3. Dependent and independent variables

Our dependent variable is the ratio of new registrants to the cumulative registration until the previous election. Using percentages is necessary to control the fact that in places with a high share of Mapuche population, Mapuche mayors also have a higher probability of being elected.

Ideally, we would like to use the ratio of new registrants to the population in a municipality (Gay, 2001; Fraga, 2016; Henderson et al., 2016). Unfortunately, we have no direct data for the Mapuche population at the municipal level. Data on the indigenous population is only available from censuses conducted in Chile every ten years. However, census questions about Indigenous self-identification have changed between censuses, and thus, data is not comparable over time.<sup>12</sup> To overcome this lack of information, we use cumulative registration as a proxy for population. Mapuche cumulative registration highly correlates with the proportion of Mapuche at the municipal level.<sup>13</sup>

To reduce the effect of the following election on our results as much as possible, we count registrations in a 1-year window after the mayoral elections. This window includes registrations for the subsequent presidential and parliamentary elections, typically held one year after local elections. But crucially, the registration rule implied that candidates for those elections still needed to be enrolled for competition when registration closed. In the 1-year window, neither elections nor candidates could affect the participation decision. We also explore new registrations in the entire mayoral period. That is, we count new registrations in a 4-year window. This exercise aims to check whether the officeholders' effect on registration washed off when estimations include candidacy.

Methodologically, using the complete registration roll is a considerable advantage for estimation. Data limits are a concern in these studies (Rocha et al., 2010; Fraga, 2016). While individual survey data is well suited for understanding individual behavior, it has severe problems associated with response bias and the sample representativeness of minority groups. On the contrary, aggregate data solves these problems at the price of the ecological fallacy. Our approach uses a comprehensive data set, including all Chile national registrations. The total number of new registrations during the first three years of the mayoral period is 1,303,643, and 77,256 out of them corresponds to Mapuche citizens. When we extend the registration window to the entire 4-year mayoral period, new registrations are 3,119,972, and Mapuche's new registrations are 180,072. Table 1 provides descriptive statistics disaggregated at the municipal level.

The number of Mapuche mayors is low compared to the non-Mapuche ones. The low number of Mapuche politicians is a structural consequence of studying officeholding of deprived groups. In our analysis period, they are about 3% of all the municipalities. While these percentages give us enough variance to identify the coefficients of

<sup>11</sup> The “Títulos de Merced” were land property rights given by the Chilean state to indigenous people.

<sup>12</sup> Between 1992 and 2002, the share of Mapuche reduced in half, from 9 to 4 percent, due to differences in the questionnaire. Moreover, the 2012 census was declared invalid due to technical problems, so the next data is from 2017.

<sup>13</sup> Correlation was 73% for census data in 1992 and 78% for 2002.

**Table 1**  
Descriptive statistics.  
Source: SERVEL.

| Election                         | 1992    | 1996    | 2000    | 2004    | 2008    |
|----------------------------------|---------|---------|---------|---------|---------|
| All Mayors                       | 334     | 341     | 341     | 345     | 345     |
| Mapuche Mayors                   | 5       | 6       | 11      | 12      | 10      |
| Mapuche/All Mayors               | 1.5%    | 1.8%    | 3.2%    | 3.5%    | 2.9%    |
| All Registrants                  | 1,825.8 | 1,915.1 | 1,560.0 | 1,390.8 | 2,450.5 |
| Mapuche Registrants              | 109.2   | 122.2   | 87.2    | 76.4    | 132.9   |
| Mapuche/All Registrants          | 7.7%    | 8.3%    | 7.7%    | 7.6%    | 7.7%    |
| Percentage respect to cumulative | 4.8%    | 11.0%   | 4.4%    | 3.3%    | 10.3%   |

Notes: Registrants include all individuals who registered between the municipal election and the previous one. Percentage to cumulative is the total Mapuche registrants one year after an election divided by the cumulative until the previous election. All and Mapuche registrants are averages at the municipal-year level.

**Table 2**  
Descriptive statistics for all variables.

|                                  | Overall |        | Mapuche mayor |        | Non Mapuche mayor |        | Diff    | P -value |
|----------------------------------|---------|--------|---------------|--------|-------------------|--------|---------|----------|
|                                  | Mean    | Sd     | Mean          | Sd     | Mean              | Sd     |         |          |
| Mapuche Mayor (%)                | 2.579   | 15.856 | -             | -      | -                 | -      | -       | -        |
| Percentage respect to cumulative | 6.753   | 14.703 | 15.787        | 69.134 | 6.523             | 10.032 | -9.264  | 0.000    |
| Margin                           | 22.096  | 17.777 | 18.098        | 16.682 | 22.202            | 17.797 | 4.105   | 0.131    |
| Mapuche' candidates votes        | 3.071   | 9.995  | 48.906        | 20.855 | 1.857             | 5.846  | -47.048 | 0.000    |
| Schooling                        | 8.337   | 1.427  | 7.791         | 1.052  | 8.352             | 1.433  | 0.560   | 0.010    |
| Unemployment                     | 8.018   | 4.215  | 8.468         | 4.814  | 8.007             | 4.199  | -0.461  | 0.474    |
| Poverty (%)                      | 26.819  | 12.086 | 29.557        | 11.327 | 26.747            | 12.100 | -2.811  | 0.128    |
| Urban Population (%)             | 60.674  | 30.333 | 48.535        | 29.761 | 60.995            | 30.291 | 12.461  | 0.007    |
| Gender composition (%)           | 49.696  | 2.716  | 50.245        | 1.879  | 49.682            | 2.734  | -0.564  | 0.174    |
| Adult Population (%)             | 67.633  | 4.538  | 67.156        | 4.397  | 67.646            | 4.543  | 0.490   | 0.480    |
| Concertacion                     | 56.741  | 49.558 | 63.636        | 48.661 | 56.558            | 49.583 | -7.078  | 0.350    |

interest, a few observations could explain the association. We consider this problem in our results section.

As for control variables, we include several socioeconomic variables that characterize municipalities at the local level. We include log income measures, schooling, unemployment, poverty rate, the proportion of the urban population, and the fraction of both the male and adult population. These variables are from the National Socioeconomic Survey, CASEN, conducted by the Chilean government every two or three years. For 1992 to 2000, we used the survey conducted in the same year. For 2004 and 2008, we used closer surveys from 2003 and 2009, respectively. As CASEN is not conducted in the most minor areas of the country, we used data from the census for those municipalities. We used a regression-based form of imputation for missing information from the census, like salaries and poverty. In that way, we preserve all the information in our sample.

Finally, we would like to control for the fact that aligned mayors may mobilize at national elections one year after local ones. In Chile, two coalitions disputed the government during our period of analysis. Accordingly, we include the dummy “Concertacion”, which denotes the largest center-left coalition. The identification of mayors within coalitions also uses information from SERVEL.

Table 2 shows the descriptive statistics for the whole set of controls split by municipalities with and without Mapuche mayors. We observe no significant difference in margin of victory, unemployment, poverty, gender and adult composition, and coalition to which the mayor belongs. As expected, votes for Mapuche candidates are higher in municipalities with a Mapuche mayor. On the other hand, the number of years of schooling is smaller in municipalities with Mapuche mayors. Also, the urban population is lower, which is consistent with Mapuche being more concentrated in rural areas.

#### 4.4. Identification

The purpose of our identification strategy is twofold. First and foremost, we aim to study the effect of Mapuche mayors on new registrations. Secondly, we intend to disentangle the direct impact

of descriptive representation from the consequences of electoral campaigning. The Chilean registration rule and the use of new voters during the first-year term allow us to attenuate these electoral concerns.

Nevertheless, we must admit that our identification strategy does not remove all the electoral campaigning mobilization. In the first term, there is broad evidence that mayors mobilize voters not only for local but also for national elections.<sup>14</sup> In the case of Chile, this behavior is particularly pronounced given that national elections are one year after mayoral elections, and thus, the government intervenes in local elections to accommodate mayors as brokers for its campaign (Corvalan et al., 2018). We control for the mayors’ party in our estimations to reduce this concern.

Secondly, an ideal natural experiment would have a Mapuche mayor not running for reelection while no other Mapuche is running as a candidate after his mayoral period. In that case, we would be sure that a change in registrations during the period was entirely due to the office-holding effect. However, Chile had no term limits in our study period, and almost all Mapuche mayors ran for reelection (94% of all Mapuche mayors run as candidates in the next election). While our first empirical exercise restricts registrations to the first year term, voters and politicians likely anticipated that most mayors would run for reelection and thus mobilize from the beginning of their term in office.

Overall, the ideal conditions for estimating the effect of empowerment are a situation without national elections and term limits for mayors. With all those caveats, however, we see our evidence as suggestive that office-holding affects participation through channels other than electoral campaigning.

#### 4.5. Empirical strategy

We are interested in how Mapuche’s political participation at the municipal level responds to a Mapuche having won the previous

<sup>14</sup> See, for instance, Novaes, 2018 and Junqueira and Silva, 2023 for Brazilian mayors.

election. In particular, we would like to estimate the relationship between Mapuche mayors and the percentage of new Mapuche registrants during the first year and the entire mayoral term.

Mapuche's political victory may be correlated with unobserved municipality characteristics, such as voter preferences or others, that directly determine their participation in subsequent elections. The small number of Chilean municipalities prevents using an RDD strategy (Broockman, 2014; Bhalotra et al., 2018). An alternative approach is a matching exercise, constructing non-Mapuche-governed municipalities similar to the ones with Mapuche mayors in all the observable variables. In this case, however, we prefer to take advantage of our repeated sample data to control for municipal-specific effects.<sup>15</sup> Contrary to several works studying the consequences of descriptive representation on registration using cross-district correlations, our panel approach allows us to disentangle representation from district effects (Fraga, 2016). Fixed effect estimation controls the confounding effect of unobserved variables that are not changing over time but might affect both representation and registration.

We estimate the following equation:

$$y_{it} = \beta m_{it} + \gamma x_{it} + \delta_i + \delta_t + \varepsilon_{it} \quad (1)$$

where  $y_{it}$  is the percentage of new Mapuche registrants in a 1-year window that starts at  $t$  in municipality  $i$ , and  $m_{it}$  is a dummy variable that indicates whether a Mapuche succeeds in the mayor election at  $t$ , that is, whether the mayor is Mapuche during the registration window. The variables  $x_{it}$  are a set of controls, and  $\delta_i$  and  $\delta_t$  are municipality and election fixed effects. We assume that the error term  $\varepsilon_{it}$  is clustered by municipality.

Our empirical strategy controls for time effects. With this, we discard time trends as intrinsic Mapuche mobilization. Time dummies also rule out the consequences of changes occurring in all communes simultaneously, as was the change in the electoral rules in 2004. We add several political, socioeconomic, and demographic controls for municipal-specific time-varying variables.

## 5. Results

### 5.1. Baseline results

We estimate Eq. (1) with the percent of Mapuche and All registrants as the dependent variables within a 1-year registration window. Table 3 provides our baseline results.

In Table 3, columns (1) and (4) display the more parsimonious specification, including only the municipal and election dummies. All the other columns include (non-reported) controls. Columns (2) and (5) are two-way fixed effect estimators, while columns (3) and (6) include results for the first differences estimator. We observe that results for both Mapuche and All are consistent over the different estimation techniques.

The main result of Table 3 is that Mapuche registrants are positive and significantly correlated with Mapuche office-holders once we include controls. Regarding the magnitude, a Mapuche in office implies an increase of about 3% of new registrations. To assess the magnitude of this percentage, we notice that the effect is sizeable compared with the mean of the dependent variable, which is about 5%.

On the contrary, Mapuche mayors do not affect All registrations. The coefficients for All estimations are about one-fourth of those in Mapuche estimations. In other studies, non-minority voters are less

<sup>15</sup> Alternatively, matching can be used to create a matched sample and implement the TWFE estimators. However, the few municipalities with Mapuche mayors do not allow us to perform this exercise.

likely to vote when minority politicians represent them.<sup>16</sup> In our case, we found a null effect on non-Mapuche.<sup>17</sup>

No other determinants are robustly associated with Mapuche or all registration. The non-reported socioeconomic controls are typically uncorrelated with registration. These results are not surprising, given that we control for municipality fixed-effects and socioeconomic variables change slowly.

### 5.2. Entire mayoral period

We consider the same specification but with new registrations in a 4-year window, that is, in the entire mayoral period. This exercise aims to check whether the officeholders' effect on registration washed off when estimations include candidacy. Again, the question is whether Mapuche's potential voters register more when another group member is in office. This period includes all those who register for the next election, in which Mapuche mayors typically run as incumbents or other Mapuche are competing. We did not include any variable related to the election at  $t+1$  because they might be endogenous to the share of registrants in the mayoral term. Table 4 displays our results.

As in the previous exercise, Mapuche's new registrations are associated positively with Mapuche mayors. The coefficient is close to 12%, four times the one reported in Table 3 because new registrations are higher considering the entire period. The mean of new registrations is about 16%, meaning that the coefficients over means are similar in the two tables.

Contrary to the results for 1-year registrations, Mapuche mayors are associated with higher All registration, although in Table 4, the coefficients for the entire population are only slightly below the 10% threshold. However, the magnitude of the association is lower than in the case of Mapuche, even though the means of the dependent variables are comparable. As said, the same results have been observed in other studies for Blacks and Latinos in the US.

These results for the entire mayoral period reassert that Mapuche officeholding affects registration among their group members.

### 5.3. Robustness

The specification (1) assumes that whether the dependent variable  $y_{it}$  exhibits serial correlation, this is due to the error term and not to the inclusion of lags in the specification. In fact, in the previous tables, the Wooldridge test sometimes rejects and sometimes accepts the null hypothesis of no first-order autocorrelation. Including the lagged dependent variable (LDV) in a fixed-effect model has generated an interesting debate in the literature (Achen, 2000; Beck and Katz, 2011). The recent paper by Wilkins (2018) recommends using LDVs as a robust estimation strategy, but Cook and Webb (2021) replies that lags mischaracterize the dynamic process.

To overcome this dispute, we also provide results for a dynamic panel that includes the lagged dependent variable  $y_{i,t-1}$  on the specification's right-hand side. However, in this case, the two-way fixed estimators are biased, which can be problematic in a short panel as our Nickell (1981), in which  $N = 345$  but  $T = 5$  is short enough. To correct this problem, we use  $y_{i,t-2}$  as an instrument variable for  $\Delta y_{i,t-1}$ , as proposed by Anderson and Hsiao (1981) (AH). The AH estimator's efficiency improves by using additional lags as instruments in a GMM approach (Arellano and Bond, 1991) (AB). Appendix A exhibits results consistent with those already obtained for the static panels.

A second robustness check is whether rare events drive the results. As mentioned, the number of Mapuche mayors is low compared to

<sup>16</sup> See Gay (2001) for African Americans, and Barreto (2007) for Latinos in the US.

<sup>17</sup> As Mapuche are about 10%, the results are very similar when considering non-Mapuche instead of All. Results are available upon request.

**Table 3**  
Baseline estimations.

| Dep. Var.                | Percentage of new registrations |                   |                    |                  |                   |                    |
|--------------------------|---------------------------------|-------------------|--------------------|------------------|-------------------|--------------------|
|                          | Mapuche                         |                   |                    | All              |                   |                    |
|                          | TWFE<br>(1)                     | TWFE<br>(2)       | FD<br>(3)          | TWFE<br>(4)      | TWFE<br>(5)       | FD<br>(6)          |
| Mapuche mayor (t)        | 0.716<br>(0.811)                | 3.032*<br>(1.805) | 3.720**<br>(1.707) | 0.014<br>(0.297) | 0.718<br>(0.929)  | 1.268<br>(0.880)   |
| Margin (t)               |                                 | 0.006<br>(0.011)  | 0.001<br>(0.010)   |                  | -0.011<br>(0.007) | -0.010*<br>(0.006) |
| Mapuche' cand. votes (t) |                                 | -0.063<br>(0.042) | -0.089*<br>(0.049) |                  | -0.022<br>(0.023) | -0.036<br>(0.028)  |
| Concertacion             |                                 | -0.567<br>(0.396) | -0.524<br>(0.377)  |                  | -0.175<br>(0.221) | 0.081<br>(0.177)   |
| SES controls             | NO                              | YES               | YES                | NO               | YES               | YES                |
| Observations             | 1,359                           | 1,359             | 1,014              | 1,361            | 1,361             | 1,016              |
| R-squared                | 0.270                           | 0.303             | 0.343              | 0.396            | 0.409             | 0.430              |
| Mean                     | 4.802                           | 4.802             | 4.802              | 3.826            | 3.826             | 3.826              |
| Number of comuna         | 345                             | 345               | 341                |                  | 345 345           | 341                |
| Wooldridge test          | 0.0210                          | 0.014             |                    | 0.170            | 0.157             |                    |

Notes: Dependent variable is the percentage of new registration in a 1-year window after the mayoral election. Mean is the average of the dependent variable. The coefficients are estimated using Two Ways Fixed Effects (TWFE) and First Differences (FD). Mapuche mayor is a dummy variable that equals one if a Mapuche is elected as mayor. SES controls are log of income, schooling, unemployment, poverty, male rate, adult population, rural/urban and the ratio of Mapuche to population. All specifications include municipality and election fixed effects. Cluster standard errors in parenthesis. \*, \*\*, \*\*\*, significance at the 10%, 5% and 1% level, respectively.

**Table 4**  
Entire mayoral period.

| Dep. Var.                | Percentage of new registrations |                     |                      |                    |                     |                    |
|--------------------------|---------------------------------|---------------------|----------------------|--------------------|---------------------|--------------------|
|                          | Mapuche                         |                     |                      | All                |                     |                    |
|                          | TWFE<br>(1)                     | TWFE<br>(2)         | FD<br>(3)            | TWFE<br>(4)        | TWFE<br>(5)         | FD<br>(6)          |
| Mapuche mayor (t)        | 4.713**<br>(1.862)              | 11.467**<br>(4.727) | 14.248***<br>(4.816) | 3.795**<br>(1.810) | 6.735*<br>(3.486)   | 8.255**<br>(3.907) |
| Margin (t)               |                                 | -0.047<br>(0.030)   | -0.052<br>(0.038)    |                    | -0.042**<br>(0.020) | -0.034*<br>(0.020) |
| Mapuche' cand. votes (t) |                                 | -0.094<br>(0.109)   | -0.169<br>(0.107)    |                    | -0.051<br>(0.074)   | -0.093<br>(0.086)  |
| Concertacion             |                                 | 0.516<br>(1.731)    | 1.814<br>(2.674)     |                    | -0.683<br>(0.589)   | -0.608<br>(0.596)  |
| SES controls             | NO                              | YES                 | YES                  | NO                 | YES                 | YES                |
| Observations             | 1,359                           | 1,359               | 1,014                | 1,361              | 1,361               | 1,016              |
| R-squared                | 0.048                           | 0.172               | 0.196                | 0.083              | 0.139               | 0.165              |
| Mean                     | 16.99                           | 16.99               | 16.99                | 13.99              | 13.99               | 13.99              |
| Number of comuna         | 345                             | 345                 | 341                  | 345                | 345                 | 341                |
| Wooldridge Test          | 0.192                           | 0.118               |                      | 0                  | 0.00                |                    |

Notes: Dependent variable is the percentage of new registration in a 4-year window. Mean is the average of the dependent variable. The coefficients are estimated using Two Ways Fixed Effects (TWFE) and First Differences (FD). Mapuche mayor is a dummy variable that equals one if a Mapuche is elected as mayor. SES controls are log of income, schooling, unemployment, poverty, male rate, adult population, rural/urban and the ratio of Mapuche to population. All specifications include municipality and election fixed effects. Cluster standard errors in parenthesis. \*, \*\*, \*\*\*, significance at the 10%, 5% and 1% level, respectively.

the non-Mapuche ones. Regarding sample error, rare events on the right-hand side of the specification are not a problem in finding false-positive effects due to data mining. The estimator's variance may be high, but this is against significance. However, a problem with the fact that only a few municipalities elect Mapuche mayors is that only a few of them might be driving our results. This concern is plausible because a charismatic mayor may significantly affect future voters.

To check that our results are not due to outliers, we propose a Jackknife exercise in which we estimate the same coefficient, leaving out some observations with Mapuche mayors. Appendix B explains our test and displays the results. This exercise concludes that rare events are not driving the results.

### 6. From descriptive to symbolic and substantive representation

How does office-holding matter for participation? Descriptive representation is one representation dimension, which also has symbolic and substantive aspects (Pitkin, 1967). To understand the relationship

between the role of politicians and registration, we analyze whether the presence of Mapuche mayors is associated with symbolic and substantive mechanisms empowering indigenous groups.

#### 6.1. Symbolic representation

Symbolic representation suggests that the very presence of an under-represented group in elected offices can change the perceptions about the proper role of that group in the political arena. These perceptions may, in turn, increase participation. We expect that descriptive representation affects symbolic representation in that the election of indigenous members in local government generates great symbolism against the discrimination of native groups.

In fact, Mapuche mayors reshaped the municipal sphere with concrete ethnic symbols. The municipalities headed by Mapuche mayors incorporated their language and people at several administrative levels. The Mapuche mapudungun became official in the commune of Galvarino (Durstun, 2007). The neighboring commune of Cholchol



incorporates “machis” – a shamanic person in the Mapuche tradition – into intercultural health and ceremonial activities developed in the commune (Montero Lueiza and Bengoa, 2007). Towards the coast, in the commune of Puerto Saavedra, something similar occurred with the incorporation of “lonkos” Mapuche leaders of the communities into municipal offices (Caniguan, 2019).

At the same time, the public space of these communes exhibits new iconographic presences. Mapuche mayors promoted the change of street and square names from Spanish conquerors or Chilean militaries to their heroes; they encouraged changes in the facades and designs of municipal buildings and incorporated sculptures and indigenous flags (Montero Lueiza and Bengoa, 2007; Norero, 2007; Caniguan, 2019). In the commune of Coyhaique, the Mapuche mayor raised a Mapuche flag next to the Chilean flag on the front of the municipal building.

It is hard to measure these symbolic measures’ impact on participation. However, existing surveys show that the Mapuche people exhibit great satisfaction in seeing their leaders as officeholders (Montero Lueiza and Bengoa, 2007; Norero, 2007; Caniguan, 2019). These transformations within these communes have contributed significantly to strengthening the identity and increasing the levels of self-esteem of the Mapuche people.

## 6.2. Substantive representation

Mapuche mayors went beyond symbolic representation and established substantive forms of incorporation. The capture of local government by Mapuche actors generated several observable consequences. It is worth noticing that substantive mechanisms to increase participation are unrelated to the electorate and registration process because mayors do not have attribution on these. They cannot, for instance, expand registration access within the Mapuche communities, where most rural Mapuche live. However, they can use the structure of the state apparatus to incorporate Mapuche communities into the decision-making process. As with symbolic representation, we expect that substantive policies aimed at incorporating discriminated groups affect their propensity to participate.

To illustrate the concrete mechanisms used by the mayors, we discuss the policies implemented by the Mapuche mayor of Tirúa, Adolfo Millabur (Bascopé, 2007; Espinoza, 2018). Tirúa is the emblematic case of the Mapuche local government, and Millabur has been the most significant Mapuche leader in promoting the use of local governments to increase their presence in the territories. He introduced a repertoire of actions within the Tirúa municipality to empower indigenous communities. Here we describe some of them.

The first mechanism was to incorporate the indigenous communities into the administrative bodies where decisions are made. In Chile, the sub-municipal representation is in the hands of the “Juntas de Vecinos”, or neighborhood associations. These are community organizations representing people who reside in the same neighborhood unit and whose purpose is to promote the development of the community, defend their interests, and collaborate with state and municipal authorities. Municipalities must hear and inform “Juntas de Vecinos” on various matters and, in addition, play an essential role in its constitution, reform of statutes, financing of projects, and dissolution.

The Mapuche communities did not have the same status as neighborhood associations. However, mayor Millabur used the legal infrastructure of the state, specifically the 1993 Indigenous Law, to grant a new political status to the communities and thereby empower them in the local political dynamics. The Chilean law dissolved the community ownership of indigenous land, but the 1993 law turned this process back and allowed communities to be recognized with legal status. The municipality created an association of indigenous communities under the new legal status and incorporated them into the decision-making process (Espinoza, 2018). The neighborhood associations continue representing the non-indigenous inhabitants, but the indigenous communities come to have a similar level of representation.

A second mechanism used extensively by Mapuche mayors was empowering the community leaders as intermediaries between the municipality and the Mapuche people (Bascopé, 2007). In Chilean rural places, the figure of the intermediary, or political broker, is crucial to provide information and allocate resources at the infra-communal levels. Mapuche mayors recognized indigenous community leaders – the “lonkos” – as the legitimate spokespersons who channel resources to the communities. In the voice of the Mapuche themselves, at that moment, the indigenous community emerges as a valid interlocutor with the local government.

A third mechanism aimed to incorporate the sub-territorial communities into the municipal development projects’ design, programming, and execution (Bascopé, 2007). While this is a general concern of mayors, in the case of Mapuche ones, the explicit objective was to empower the Mapuche communities. For that, the municipality promoted a new sub-territorial division to create areas with a strong Mapuche presence. As municipal investment decisions incorporated leaders from the sub-territories, the indigenous communities began to have a voice in the political process. In a sense, this mechanism resembles the use of minority-majority redistricting in the US.

In summary, the empowerment of indigenous communities at the municipal level was the primary mechanism used by Mapuche mayors to provide substantive representation to their group. This allowed the emergence of new leadership within communities.

## 7. Conclusions

Indigenous populations are one of the most disadvantaged groups in the world. In 2000, the United Nations established the Permanent Forum for Indigenous Issues. One of the most significant roles of the Forum is to help boost native peoples’ participation as a tool to overcome historical inequalities and discrimination.<sup>18</sup> As in the case of the other widely studied minorities, to understand the consequences of indigenous representation is essential to promote mechanisms that encourage their political incorporation and participation.

The Chilean Mapuche are an example of an indigenous group that has actively participated in institutional elections despite being economically and socially deprived. They have received no help from the government, and only in the past few years have affirmative policies been seriously discussed in the country. Nevertheless, Mapuche perceived local governments as realms for political action, and their participation and representativeness at the municipal level increased over time.

This work shows that Mapuche’s descriptive representation has empowered their voters, encouraging political participation. Using fine-grained registration data and identifying the Mapuche by their surnames, we show that Mapuche mayors’ election mayors encourage future registrations among their group of voters. The number of new registrations increases during the first year of the mayoral period, long before the next election. This result suggests the effect is not only due to the campaigning effects of Mapuche candidates but also to descriptive representation, which supports the empowerment hypothesis. The correlation is sizeable. In the entire mayoral period, Mapuche mayors are associated with a 50% increase in the rate of new registrations.

These results are consistent with several local authors who suggest that indigenous mayors influenced political engagement at the sub-municipal level. Mapuche mayors implemented symbolic and substantive mechanisms empowering indigenous groups. They promoted the increase of ethnic symbols in the territories while using the structure of the state apparatus to incorporate Mapuche communities into the decision-making process.

<sup>18</sup> <https://www.undp.org/content/undp/en/home/ourperspective/ourperspectivearticles/2013/05/23/la-inclusion-politica-de-los-pueblos-indigenas-enriquece-las-democracias-en-america-latina.html>

**Table A.1**  
Baseline estimations — Dynamic models.

| Dep. Var.                | Percentage of new registrations |                   |                   |                  |                   |                    |
|--------------------------|---------------------------------|-------------------|-------------------|------------------|-------------------|--------------------|
|                          | Mapuche                         |                   |                   | All              |                   |                    |
|                          | TWFE<br>(1)                     | AH<br>(2)         | AB<br>(3)         | TWFE<br>(4)      | AH<br>(5)         | AB<br>(6)          |
| Mapuche mayor (t)        | 0.716<br>(0.811)                | 1.895*<br>(1.090) | 1.875*<br>(1.108) | 0.014<br>(0.297) | 0.173<br>(0.371)  | 0.149<br>(0.385)   |
| Margin (t)               |                                 | 0.004<br>(0.008)  | 0.003<br>(0.008)  |                  | -0.007<br>(0.005) | -0.009*<br>(0.005) |
| Mapuche' cand. votes (t) |                                 | -0.027<br>(0.024) | -0.027<br>(0.024) |                  | 0.000<br>(0.013)  | 0.001<br>(0.013)   |
| Concertacion             |                                 | -0.334<br>(0.321) | -0.336<br>(0.323) |                  | 0.154<br>(0.150)  | 0.144<br>(0.151)   |
| Dep. Var (t-1)           |                                 | -0.134<br>(0.086) | -0.126<br>(0.083) |                  | -0.177<br>(0.156) | -0.134<br>(0.157)  |
| SES controls             | NO                              | YES               | YES               | NO               | YES               | YES                |
| Observations             | 1,359                           | 1,005             | 1,005             | 1,361            | 1,009             | 1,009              |
| R-squared                | 0.270                           | 0.462             |                   | 0.396            | 0.606             |                    |
| Mean                     | 4.802                           | 4.802             | 4.802             | 3.826            | 3.826             | 3.826              |
| Number of comuna         | 345                             | 341               | 341               | 345              | 341               | 341                |
| Wooldrige test           | 0.0210                          |                   |                   | 0.170            |                   |                    |
| Sargan stat              |                                 |                   | 7.586             |                  |                   | 35.32              |
| AR2 test                 |                                 |                   | 0.189             |                  |                   | 0.206              |

Notes: Dependent variable is the percentage of new registration in a 1-year window after the mayoral election. Mean is the average of the dependent variable. The coefficients are estimated using Two Ways Fixed Effects (TWFE), Anderson–Hsiao (AH) and Arellano Bond (AB). Mapuche mayor is a dummy variable that equals one if a Mapuche is elected as mayor. SES controls are log of income, schooling, unemployment, poverty, male rate, adult population, rural/urban and the ratio of Mapuche to population. All specifications include municipality and election fixed effects. Cluster standard errors in parenthesis. \*, \*\*, \*\*\*, significance at the 10%, 5% and 1% level, respectively.

**Table A.2**  
Entire mayoral period — Dynamic models.

| Dep. Var.                | Percentage of new registrations |                      |                      |                    |                   |                   |
|--------------------------|---------------------------------|----------------------|----------------------|--------------------|-------------------|-------------------|
|                          | Mapuche                         |                      |                      | All                |                   |                   |
|                          | TWFE<br>(1)                     | AH<br>(2)            | AB<br>(3)            | TWFE<br>(4)        | AH<br>(5)         | AB<br>(6)         |
| Mapuche mayor (t)        | 4.713**<br>(1.862)              | 11.027***<br>(4.091) | 10.850***<br>(3.994) | 3.795**<br>(1.810) | 4.766*<br>(2.704) | 4.746*<br>(2.694) |
| Margin (t)               |                                 | -0.025<br>(0.036)    | -0.023<br>(0.037)    |                    | -0.015<br>(0.015) | -0.020<br>(0.016) |
| Mapuche' cand. votes (t) |                                 | -0.076<br>(0.068)    | -0.079<br>(0.067)    |                    | 0.003<br>(0.049)  | 0.010<br>(0.049)  |
| Concertacion             |                                 | 0.824<br>(1.828)     | 0.806<br>(1.799)     |                    | -0.386<br>(0.541) | -0.362<br>(0.543) |
| Dep. Var (t-1)           |                                 | 0.097<br>(0.081)     | 0.077<br>(0.063)     |                    | 0.057<br>(0.081)  | 0.062<br>(0.080)  |
| SES controls             | NO                              | YES                  | YES                  | NO                 | YES               | YES               |
| Observations             | 1,359                           | 1,005                | 1,005                | 1,361              | 1,009             | 1,009             |
| R-squared                | 0.048                           | 0.094                |                      | 0.083              | 0.185             |                   |
| Mean                     | 16.99                           | 16.99                | 16.99                | 13.99              | 13.99             | 13.99             |
| Number of comuna         | 345                             | 341                  | 341                  | 345                | 341               | 341               |
| Wooldrige Test           | 0.192                           |                      |                      | 0                  |                   |                   |
| Sargan stat              |                                 |                      | 5.827                |                    |                   | 19.79             |
| AR2 test                 |                                 |                      | 0.448                |                    |                   | 0.782             |

Notes: Dependent variable is the percentage of new registration in a 4-year window. Mean is the average of the dependent variable. The coefficients are estimated using Two Ways Fixed Effects (TWFE), Anderson–Hsiao (AH) and Arellano Bond (AB). Mapuche mayor is a dummy variable that equals one if a Mapuche is elected as mayor. SES controls are log of income, schooling, unemployment, poverty, male rate, adult population, rural/urban and the ratio of Mapuche to population. All specifications include municipality and election fixed effects. Cluster standard errors in parenthesis. \*, \*\*, \*\*\*, significance at the 10%, 5% and 1% level, respectively.

**CRedit authorship contribution statement**

**Pedro Cayul:** Software, Investigation, Data curation. **Alejandro Corvalan:** Writing – review & editing, Writing – original draft, Methodology.

**Declaration of competing interest**

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

**Data availability**

Data will be made available on request.

**Appendix A. Dynamic panel**

We provide estimations for a dynamic panel that includes the lagged dependent variable  $y_{i,t-1}$  on the specification's right-hand side in the specification (1). As our panel is short, the Anderson–Hsiao (AH) and Arellano–Bond (AB) estimators are reported.

Table A.1 displays our results for the 1-year window.

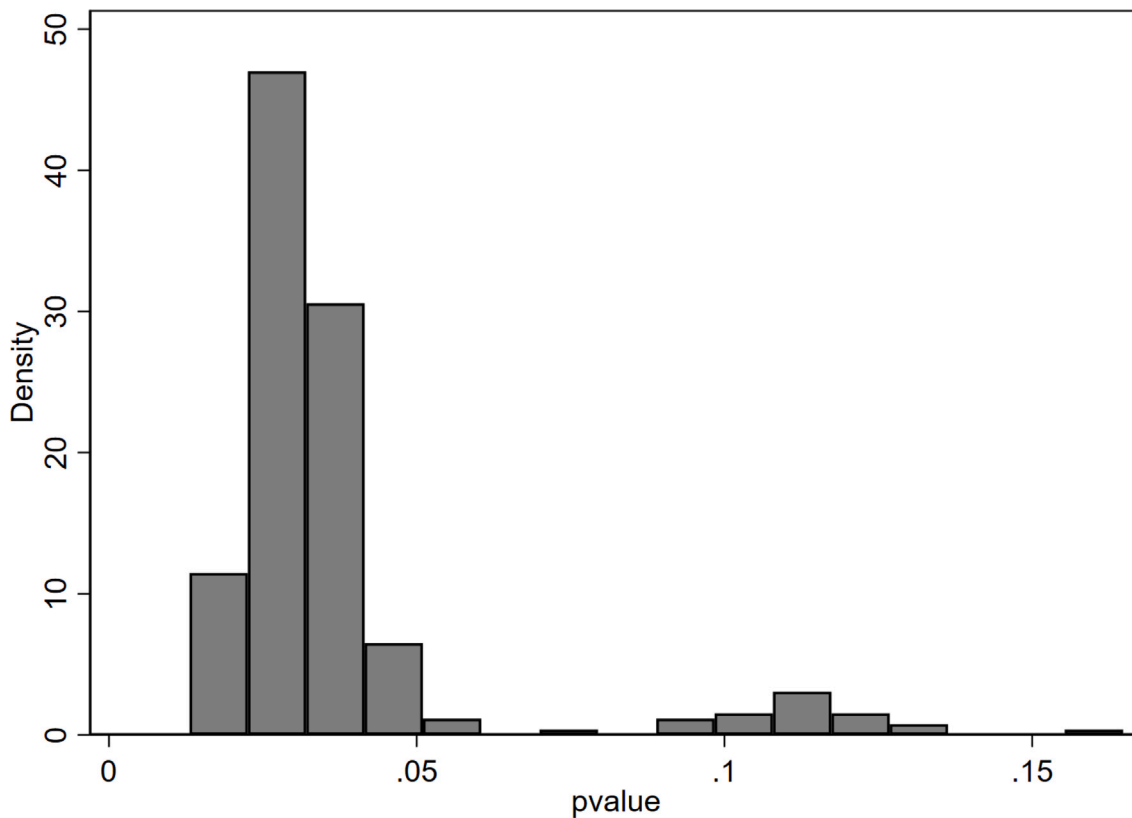


Fig. B.1. P-values for reduce samples.

Table A.2 displays our results for the 4-year window.

The results in the two tables are full consistent with the static-panel estimations reported in Tables 3 and 4.

### Appendix B. Reduced sample

To check whether the results are driven by rare events, we propose the following Jackknife exercise in which we estimate the coefficient leaving out some observations with Mapuche mayors. We first drop each observation in the exercise and estimated the coefficient with a  $n - 1$ -sized sample. Then, we consider all pairs of municipalities in the sample, and we estimate a sub-sample with  $(n - 2)$  observations excluding these pairs. We do not drop municipalities with non-Mapuche mayors. The estimation is the FD regression, including all controls, as in column (3) in Table 3. Fig. B.1 reports the p-values for the entire set of possible combinations of  $(n - 1)$  and  $(n - 2)$ -sized sub-sample estimations:

We observe that p-values are distributed around 0.038 which is slightly higher than our  $p$ -value in column (3) in Table 3, of 0.03. 90.57% of the mass are between 0.01 and 0.05 and the rest are above 0.05. Only 19 of our 276 regressions are above 0.1 of significance. Therefore, we can conclude that outliers are not driving our results.

### References

Achen, C.H., 2000. Why lagged dependent variables can suppress the explanatory power of other independent variables. In: Annual Meeting of the Political Methodology Section of the American Political Science Association, UCLA, vol. 20, pp. 07–2000.

Agostini, C.A., Brown, P.H., Roman, A.C., 2010. Poverty and inequality among ethnic groups in Chile. *World Dev.* 38 (7), 1036–1046.

Anderson, T.W., Hsiao, C., 1981. Estimation of dynamic models with error components. *J. Am. Stat. Assoc.* 76 (375), 598–606.

Arellano, M., Bond, S., 1991. Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *Rev. Econ. Stud.* 58 (2), 277–297.

Armstrong, D., Alcantara, C., Kennedy, J., 2023. Exploring the effects of electorate size on indigenous voter turnout. *Politics, Groups, Identities* 11 (1), 98–107.

Assies, W., Gundermann, H., 2007. *Movimientos Indígenas Y Gobiernos Locales En América Latina*. Ocho Libros Editores.

Banducci, S.A., Donovan, T., Karp, J.A., 2004. Minority representation, empowerment, and participation. *J. Politics* 66 (2), 534–556.

Barreto, M.A., 2007. Isí se puede! Latino candidates and the mobilization of Latino voters. *Am. Political Sci. Rev.* 42, 5–441.

Barreto, M.A., Villarreal, M., Woods, N.D., 2005. Metropolitan Latino political behavior: Voter turnout and candidate preference in Los Angeles. *J. Urban Aff.* 27 (1), 71–91.

Bascopé, J., 2007. Entre el liderazgo y la representación: alcances y límites del gobierno local indígena en tirúa, Chile. *Movimientos indígenas y gobiernos locales en América Latina*.

Beck, N., Katz, J.N., 2011. Modeling dynamics in time-series–cross-section political economy data. *Annu. Rev. Political Sci.* 14, 331–352.

Bengoa, J., 2000. *Historia Del Pueblo Mapuche: (Siglo XIX Y XX)*, vol. 7, Lom Ediciones.

Bhalotra, S., Clots-Figuera, I., Iyer, L., 2018. Pathbreakers? women’s electoral success and future political participation. *Econ. J.* 128 (613), 1844–1878.

Bobo, L., Gilliam, Jr., F.D., 1990. Race, sociopolitical participation, and black empowerment. *Am. Political Sci. Rev.* 37, 7–393.

Broockman, D.E., 2014. Do female politicians empower women to vote or run for office? a regression discontinuity approach. *Elect. Stud.* 34, 190–204.

Burns, N., Scholzman, K.L., Verba, S., 2001. *The Private Roots of Public Action*. Harvard University Press.

Caniguan, N., 2019. *Movimiento territorial indígena y gobiernos locales, etnografía de caso en una comuna de la araucanía, Chile*. *Antropologías del sur* 6 (11), 63–78.

Cayul, P., Corvalan, A., Jaimovich, D., Pazzona, M., 2022. Introducing maceda: New micro-data on an indigenous self-determination conflict. *J. Peace Res.* 59 (6), 903–912.

Cayuqueo, P., 2006. *Participación Y Voto Mapuche En Las Municipales*. In: Mimeo; Tercer Taller de Formación Política de Wallmapuwen, Corporación Unión Araucana, Padre Las Casas.

Clark, C.J., 2014. Collective descriptive representation and black voter mobilization in 2008. *Political Behav.* 36, 315–333.

Cook, S.J., Webb, C., 2021. Lagged outcomes, lagged predictors, and lagged errors: a clarification on common factors. *Political Anal.* 29 (4), 561–569.

Corvalan, A., Cox, P., Osorio, R., 2018. Indirect political budget cycles: Evidence from Chilean municipalities. *J. Dev. Econ.* 133, 1–14.

Durston, J., 2007. Poder local y movimiento étnico en villarrica, Chile. In: *Movimientos indígenas y gobiernos locales en América Latina*. pp. 290–327.

Espinoza, C., 2015. *Alcalde mapuche y etnización del escenario político comunal e infracomunal*. In: *Procesos políticos y económicos contemporáneos en regiones indígenas de América Latina*. pp. 207–244.

- Espinoza, C., 2018. El desafío municipal mapuche: etnografía de una experiencia política: Tirúa 1992–2008. *AIBR: Revista de Antropología Iberoamericana* 13 (3), 355–379.
- Flesken, A., Hartl, J., 2020. Ethnicity, inequality, and perceived electoral fairness. *Soc. Sci. Res.* 85, 102363.
- Foerster, R., Vergara, J., 2001. Algunas transformaciones de la política mapuche en la década de los noventa. In: *Anales de la Universidad de Chile*, VI, Serie, vol. 13, pp. 2–23.
- Fraga, B.L., 2016. Candidates or districts? reevaluating the role of race in voter turnout. *Am. J. Political Sci.* 60 (1), 97–122.
- Gay, C., 2001. The effect of black congressional representation on political participation. *Am. Political Sci. Rev.* 58, 9–602.
- Griffin, J.D., Keane, M., 2006. Descriptive representation and the composition of African American turnout. *Am. J. Political Sci.* 50 (4), 998–1012.
- Hayes, M., Hibbing, M.V., 2017. The symbolic benefits of descriptive and substantive representation. *Political Behav.* 39, 31–50.
- Henderson, J.A., Sekhon, J.S., Titunik, R., 2016. Cause or effect? turnout in hispanic majority-minority districts. *Political Anal.* 24 (3), 404–412.
- Hinojosa, M., Kittilson, M.C., 2020. Seeing Women, Strengthening Democracy: How Women in Politics Foster Connected Citizens. Oxford University Press, USA.
- Hiskey, J.T., Goodman, G.L., 2011. The participation paradox of indigenous autonomy in Mexico. *Lat. Am. Politics Soc.* 53 (2), 61–86.
- Htun, M., 2004. Is gender like ethnicity? The political representation of identity groups. *Perspect. Politics* 2 (3), 439–458.
- Huysen, K.R., Sanchez, G.R., Vargas, E.D., 2017. Civic engagement and political participation among American Indians and Alaska natives in the US. *Politics, Groups, Identities* 5 (4), 642–659.
- Jeong, H.O., 2013. Minority policies and political participation among Latinos: Exploring Latinos' response to substantive representation. *Soc. Sci. Q.* 94 (5), 1245–1260.
- Junqueira, A., Silva, P.C., 2023. Strengthening the party, weakening the women: Unforeseen consequences of strengthening institutions.
- Karp, J.A., Banducci, S.A., 2008. When politics is not just a man's game: Women's representation and political engagement. *Elect. Stud.* 27 (1), 105–115.
- Keele, L.J., Shah, P.R., White, I., Kay, K., 2017. Black candidates and black turnout: A study of viability in Louisiana mayoral elections. *J. Politics* 79 (3), 780–791.
- Lehoucq, F., Wall, D.L., 2004. Explaining voter turnout rates in new democracies: Guatemala. *Elect. Stud.* 23 (3), 485–500.
- Leighley, J.E., 2001. *Strength in Numbers?: The Political Mobilization of Racial and Ethnic Minorities*. Princeton University Press.
- Madrid, R.L., 2005. Indigenous voters and party system fragmentation in Latin America. *Elect. Stud.* 24 (4), 689–707.
- Madrid, R.L., Rhodes-Purdy, M., 2016. Descriptive representation and regime support in Latin America. *Political Stud.* 64 (4), 890–909.
- Mansbridge, J., 1999. Should blacks represent blacks and women represent women? A contingent yes. *J. politics* 61 (3), 628–657.
- Mariman, J., 1992. Cuestión Mapuche, Descentralización del Estado y Autonomía Regional. *Caravalle* (59), 189–205.
- Martínez i Coma, F., Nai, A., 2017. Ethnic diversity decreases turnout, comparative evidence from over 650 elections around the world. *Elect. Stud.* 49, 75–95.
- Montero Lueiza, H., Bengoa, J., 2007. *Identidad étnica y municipio. La nueva comuna de Chol Chol dirigida por un alcalde mapuche* (Ph. D. thesis). Universidad Academia de Humanismo Cristiano.
- Morales Quiroga, M., 2022. Experience of discrimination and democratic engagement. *Ethnopolitics* 21 (5), 581–605.
- Nickell, S., 1981. Biases in dynamic models with fixed effects. *Econometrica* 49 (6), 1417–1426.
- Norero, M., 2007. *Municipio y Etnicidad: el caso de la comuna de Alto BíoBío*. Tesis de licenciatura (Ph. D. thesis). Universidad Academia de Humanismo Cristiano-Santiago.
- Novaes, L.M., 2018. Disloyal brokers and weak parties. *Am. J. Political Sci.* 62 (1), 84–98.
- Oskooi, K.A., 2020. Perceived discrimination and political behavior. *Brit. J. Political Sci.* 50 (3), 867–892.
- Paineman, N., 2011. *Apellidos Mapuche Vinculados a Títulos De Merced. Programa De Recuperación Y Revitalización De Las Lenguas Indígenas*. CONADI, Ministerio de Desarrollo Social.
- Pantoja, A.D., Segura, G.M., 2003. Does ethnicity matter? Descriptive representation in legislatures and political alienation among Latinos. *Soc. Sci. Q.* 84 (2), 441–460.
- Pitkin, H.F., 1967. *The Concept of Representation*. University of California Press.
- Rocha, R.R., Tolbert, C.J., Bowen, D.C., Clark, C.J., 2010. Race and turnout: Does descriptive representation in state legislatures increase minority voting? *Political Res. Q.* 63 (4), 890–907.
- Sadhvani, S., 2020. Asian American mobilization: The effect of candidates and districts on asian American voting behavior. *Political Behav.* 1–27.
- Valenzuela, A.A., Michelson, M.R., 2016. Turnout, status, and identity: Mobilizing Latinos to vote with group appeals. *Am. Political Sci. Rev.* 110 (4), 615–630.
- Van Cott, D.L., 2000. Party system development and indigenous populations in Latin America: The Bolivian case. *Party Politics* 6 (2), 155–174.
- Van Cott, D.L., 2007. *From Movements to Parties in Latin America: The Evolution of Ethnic Politics*. Cambridge University Press.
- Washington, E., 2006. How black candidates affect voter turnout. *Q. J. Econ.* 121 (3), 973–998.
- Wilkins, A.S., 2018. To lag or not to lag?: Re-evaluating the use of lagged dependent variables in regression analysis. *Political Sci. Res. Methods* 6 (2), 393.
- Williams, M., Schertzer, R., 2019. Is indigeneity like ethnicity? theorizing and assessing models of indigenous political representation. *Canad. J. Political Sci./Revue canadienne de science politique* 52 (4), 677–696.
- Wolbrecht, C., Campbell, D.E., 2007. Leading by example: Female members of parliament as political role models. *Am. J. Political Sci.* 51 (4), 921–939.
- Yashar, D.J., 2005. *Contesting Citizenship in Latin America: The Rise of Indigenous Movements and the Postliberal Challenge*. Cambridge University Press.