World Development 199 (2026) 107248

Contents lists available at ScienceDirect

World Development

journal homepage: www.elsevier.com/locate/worlddev

Regular Research Article

# Social gaps, perceived inequality and protests

Olivier Bargain [a,c,d], H. Xavier Jara [b,*], David Rivera [a]

[a] Bordeaux School of Economics, France
[b] London School of Economics and Political Science, UK
[c] Institut Universitaire de France, France
[d] IZA, Germany

ARTICLE INFO

*JEL:*
D31
D63
D74
D83

*Keywords:*
Protests
Social gap
Perceived inequality
Social status

ABSTRACT

Latent feelings of economic vulnerability and social stagnation may have catalyzed the unprecedented uprisings that shook Latin America and other parts of the world in 2018–2019. We document this process in the context of Chile, leveraging survey data on protest participation and its potential determinants. Specifically, we construct a "social gap" index, measuring the disconnect between objective and perceived social status. Our findings suggest that this status misperception predicts protest involvement beyond factors such as perceived living costs, the subjective value of public services, peer influence, redistributive views and political demands. Notably, the social gap operates independently of broader feelings of unfairness and anger toward inequalities in explaining protests.

## 1. Introduction

Feelings of social stagnation and economic insecurity have played a crucial role in recent political shifts, particularly in bolstering support for radical and populist movements in Western countries. Research has extensively documented how economic downgrading and insecurity—whether caused by globalization (Autor et al., 2020), austerity policies (Fetzer, 2019; Baccini and Sattler, 2024; Justino et al., 2023), or a combination of both (Algan et al., 2017; Bossert et al., 2023; Guiso et al., 2024)—has contributed to shift electoral behavior in the US or in Europe. However, less attention has been paid to how similar perceptions and grievances translate into social protests, in particular during the unprecedented global wave of unrest in 2019 (Justino and Martorano, 2016, 2019; Justino et al., 2019). Our research provides new evidence on the distributional and psychological determinants of mass mobilizations in Latin America: we focus on the November 2019 protests in Chile (*Estallido*), which began as a student movement but quickly escalated into a broader outcry. While each protest had specific local triggers—such as metro fare hikes in Chile or the removal of gasoline subsidies in Ecuador—these events were largely fueled by widespread perceptions of social frustration amid unjust political and economic systems, rising living costs, and deteriorating public services.

So far, the literature has focused mainly on objective measures of inequality or relative deprivation to explain protests. Actual disparities may matter, for instance the role of regional inequities in France during the Yellow Vest movement (Algan et al., 2019) or top-income inequality rooted in neoliberal policies since the Pinochet era in Chile (Palacios-Valladares, 2017). Yet, capturing the role of inequality dynamics is challenging (Solt, 2008) and evidence is mixed.[1] The Latin American case highlights well this difficulty: the 2019 protests erupted after two decades of *declining* inequality, suggesting that frustration arose not from worsening conditions but from the perception that progress was incomplete and insufficient (Ferreira and Schoch, 2020).[2] This highlights the need to focus instead on subjective inequality and, more

* Corresponding author at: The London School of Economics and Political Science, Houghton Street, London WC2A 2AE, United Kingdom.
*E-mail address:* olivier.bargain@u-bordeaux.fr (O. Bargain).

[1] A positive relationship is sometimes found between local inequality and protest using cross country variation (e.g., in Nollert, 1995) but also an ambiguous or negative one (e.g., Dubrow et al., 2008; Solt, 2015). Using changes in local inequality provides a source of variation but may not refer to the most relevant comparison points. Results vary also widely across contexts, as shown in Luca et al. (2025): the authors find positive correlations in the poorest countries but weak ones in middle-income and richer countries, which aligns with evidence from Latin America (e.g., Justino and Martorano, 2016). For Colombia, Justino et al. (2019) indicate that civic engagement levels increase with inequality.

[2] Chile is no exception. The Gini coefficient fell from 54.9 in 2000 to 46.5 in 2017. On the other hand, the share of national wealth captured by the ultra-rich increased (UNDP, 2017).

https://doi.org/10.1016/j.worlddev.2025.107248
Accepted 3 November 2025
Available online 21 November 2025

specifically, the on perceived social positions. In Chile, protesters voiced grievances over corruption, tax evasion by the wealthy, as well as their own daily economic struggles, suggesting that both perceived individual situations and distributional beliefs played a central role (Justino and Martorano, 2016, 2019). The persistence of an oligarchic social contract that sustained inequality of opportunity bred discontent, particularly among the middle and upper-middle income groups, who felt that not belonging to the elite meant enduring economic insecurity and social relegation.

Against this background, we propose new empirical evidence based on original data linking protest behavior to 'misperceptions' of social ranks, alongside more usual determinants of social unrest. Precisely, we hypothesize that perceived social status, relative to actual standing, is a key catalyst for these social movements, alongside perceived inequality, unmet democratic expectations, rising living costs, and public sector privatization (Cox et al., 2024). We use panel data collected both in 2018 and following the 2019 protests. The survey enables us to explore alternative measures of protest participation (such as social media activism, street protests, and justification of violence). It also allows including various potential correlates or determinants (such as the perceived value of public services and living costs, peer influence, unfairness feelings regarding income distribution, and political attitude), along with subjective assessments of social standing. Specifically, we construct of a 'social gap' measure, which quantifies the divergence between one's objective social status—measured through alternative proxies based on income, occupation, or a combination—and subjective status, i.e., individuals' perceptions of their place in society. By analyzing this measure alongside other key determinants of protests, we provide a more comprehensive understanding of the psychological determinants of protest behavior. This mechanism departs from classic relative deprivation arguments, which focus on interpersonal comparisons or frustrated aspirations (Crosby, 1976; Grant and Brown, 1995; Grasso et al., 2019). Instead, we emphasize a self-referential misalignment between actual and perceived status, whereby individuals feel socially misplaced despite their objective position, a perception that may fuel anger and encourage protests.

Our results begin by outlining the characteristics of the protesters. They primarily belong to the middle or upper-middle class, either measured by income or occupation levels, rather than the low-income (or low-status) tiers. When accounting for standard socio-demographic and economic controls, the perceived social status does not explain protest participation, which is unsurprising given the fact that it is highly concentrated around central values. However, the tension between this subjective status and objective measures of social status—i.e., our 'social gap' measure—proves to be a consistent predictor of protest engagement. Individuals with a greater divergence between their perceived and actual social ranks exhibit higher levels of mobilization, suggesting that misperceptions and social frustration serve as catalysts for action. While our baseline result is based on the lagged social gap (i.e., 2018) to mitigate concerns of reverse causality, we also examine the cumulative dynamics leading up to the 2019 events. Specifically, we show that the probability of protesting increases with both prior social gap levels (as observed in 2017) and the widening of the social gap between 2017 and 2018. These results are not causal, as variations in the social gap (across individuals or over time) may stem from unobserved factors that simultaneously influence protest behavior. However, our findings are highly suggestive and provide valuable insight into the strong connection between a self-focused measure (the social gap) and the likelihood of participating in an unprecedented social uprising. Heterogeneity analyses show that protests are driven by the difference between those perceiving themselves as relatively disadvantaged (while possibly belonging to higher-status groups) and those feeling above their actual status (possibly belonging to the poor), but also by differences within the first group. The protest response to the feeling of social downgrading is not confined to some specific characteristics; rather, it is strong across the various attributes of protesters (e.g., being young or middle-aged, more educated, anti-conservative voters, or resident of urban centers). Finally, we estimate protest participation in richer specifications and find a solid effect of the social gap even when controlling for other self-interest considerations (such as perceived cost of living and public service quality), peer influence, or political views (e.g., concerns about democracy and corruption). Most importantly, we find that status misperception tends to operate independently of perceived redistributive views: the effect of the social gap remains robust even after controlling for variables such as unfairness feelings (regarding income distribution or tax policies) and anger over inequality. These findings suggest that social rank misperception serves as a distinct psychological and motivational factor for political activism beyond emotional perceptions of inequality.

This paper provides several contributions. *First*, it adds to the growing literature on what triggers social movements and civil conflicts. In poorer settings, such as those in Africa, social unrest often emerges from deep-seated inequalities—particularly along ethnic or class lines—that are exacerbated by economic disruptions. Events like natural disasters (Harari and La Ferrara, 2018), epidemics (Cervellati et al., 2022), and fluctuations in commodity prices (Berman and Couttenier, 2015) generate income shocks that heighten existing tensions, ultimately leading to conflict. In contrast, in middle- and high-income countries, such as those in Latin America, protests are frequently triggered by policies perceived as unfair (e.g., a subway fare increases in Chile). These events appear as breaking points within broader contexts of frustration over top-income concentration, democratic deficits, and declining living standards. Note that our study more specifically adds to a limited literature on social unrest in Latin America. Existing research links social activism and perceptions of unfairness, particularly through social media (Reyes and Gasparini, 2022), or explores how redistributive preferences and perceptions regarding public services, living standards, and corruption, shape protest dynamics (Justino and Martorano, 2019). We build on this literature by further disentangling these mechanisms and the role of self-interest determinants (such as the social gap) beyond redistributive views.

*Second*, research on the link between relative concerns and protests is relatively limited so far. Some studies in sociology, political science and social psychology examine how objective income influences political activism (Fransman and von Fintel, 2024) or protest behavior (Grant and Brown, 1995; Lijphart, 1997; Grasso and Giugni, 2016). The objectively poor tend to have lower political participation due to structural barriers (e.g., lack of resources, education, and time) and lower social integration into networks that encourage engagement (Brady et al., 1995; Solt, 2008; Schlozman et al., 2012; Erikson, 2015; Kraus et al., 2015). Yet, these mechanisms are rarely related to subjective ranks and perceptions (Ravallion, 2015). Our approach does so by incorporating subjective self-placement. It also adds to explanations for the poor's under-representation in protests, which we attribute to a sense of centrality. Conversely, the social gap is most pronounced among middle- and upper-middle-status individuals who see themselves as below their objective position, consistent with the 'middle-class bias' in self-placement (Hvidberg et al., 2023; Fehr et al., 2022).[3] In the literature, such downward misalignment has been documented, often through experimental work (Cruces et al., 2013; Hoy and Mager, 2021), but it has not been examined as a catalyst for social protest, as we propose here.

[3] The feeling of being worse off than one's actual position is rarely considered a key factor in explaining higher levels of political engagement and activism among the middle and upper-middle class – an exception is Grasso et al. (2019). Qualitative evidence of a deprivation-protest paradox is also provided in Power (2018), describing situations where people are aware of a narrative of objective recovery but are not feeling it subjectively in their lived experiences: this gap—between expectations and lived experiences—can galvanize and legitimize protest and civic discontent.

*Third*, some research links relative social status to other outcomes, such as subjective well-being and redistributive preferences, with particular attention to the identification of comparison groups (Clark and Senik, 2010).[4] In a similar way, the literature on relative deprivation refers to the feeling of being disadvantaged compared to a reference point, either other people or one's own aspirations. In contrast, our social gap focuses on the subjective–objective discrepancy, i.e. it captures a status misperception that is not necessarily rooted in direct social comparisons. Moreover, our approach establishes some independence from broader inequality perceptions: the social gap predicts protest even after controlling for anger over inequality, indicating that subjective status misalignment has a distinct psychological effect on mobilization, not mediated by general inequality aversion as in the relative deprivation theory (Power, 2018; Justino and Martorano, 2019). In the same line, while individuals' perceived socio-economic position—and misjudgments of their own status—is often seen as shaping distributional preferences (e.g., Fong 2001; Kuziemko et al., 2014; Fisman et al. 2020; Hvidberg et al., 2023), we show that the social gap is not a mere component of redistributive views but plays its role as a protest catalyst. Finally, our results are broadly consistent with studies on redistributive preferences that manipulate individual rank perception experimentally.[5]

The rest of the paper is structured as follows. Section 2 provides background information and presents the data and the empirical strategy. Section 3 reports the main results, heterogeneity and sensitivity analyses, while section 4 concludes.

## 2. Background information, data and empirical strategy

### 2.1. Background information

The 2019 Chilean protests began on October 6th following a metro fare increase in Santiago, initially sparking widespread fare evasion by students. The unrest quickly escalated into mass mobilization, leading to violent confrontations and prompting the government to declare a state of emergency. The movement reached its peak on October 25th, when approximately 1.2 million people gathered in Santiago, with other numerous protests spreading across multiple cities nationwide. The unrest continued for several weeks, marked by intense and widespread demonstrations, resulting in 36 deaths and over 11,500 injuries. Over time, protest participation gradually declined, further dampened by COVID-19 restrictions in 2020. The demonstrations left a lasting impact, eventually contributing to national elections and the drafting of a new constitution in 2021 to address long-standing grievances. As was the case for several social movements in 2019, the Chilean protests lacked visible leaders and clear demands, fueled by a diverse middle-class sector that felt increasingly alienated by growing disparities in wealth, persistent corruption, and the privatization of essential services. Protesters were said to be primarily young, educated, and frequent social media users (Cox et al., 2024). The present paper provides novel evidence and a more refined picture of the protesters.

### 2.2. Data

**Survey.** Our analysis is based on the *Estudio Longitudinal Social de Chile (ELSOC),* a nationally representative survey of the Chilean population aged 18–75, based on 92 communes of the 15 regions of Chile. The dataset contains detailed information on individual and household characteristics including socio-demographic variables, income, detailed occupation, as well as subjective information on well-being, redistributive preferences and political views. The ELSOC survey was designed by the Center for Social Conflict and Cohesion Studies (COES) and, for this reason, is uniquely oriented towards measures of social cohesion and conflict in Chile, including social relations, institutional trust, political participation and, most importantly, protest participation (in various forms). This dataset is publicly available but remains relatively underutilized. It is nonetheless recognized as a reliable and robust data resource in economics and political science, for instance to mobilize subjective data (Schleef et al., 2024), to study the link between social status and occupational prestige (Requena and Figueroa, 2019), or to examine geographical correlation between past repression and democratic outcomes (Bautista et al., 2021; Bourret-Soto, 2024).

**Panel, Representativeness and Attrition.** Although six rounds of this longitudinal survey are available (starting 2016), we primarily use the wave corresponding to the 2019 protests for cross-sectional estimations, using individual characteristics from the previous years obtained thanks to the panel dimension. We will also present fixed effect panel estimations. We assess the representativeness of ELSOC using CASEN as a benchmark. CASEN (Encuesta de Caracterización Socioeconómica Nacional) is the National Socioeconomic Characterization Survey, a representative survey comprising more than 160,000 individuals for the year 2017 (the closest available for our comparison). In online appendix Table B1, we compare sociodemographic compositions of both surveys (using population weight and focusing on the years 2018–19 for ELSOC): marginal distributions for key characteristics shows no significant discrepancies. Note also that attrition in the panel may be non-random and could affect the interpretation of our results—for instance, if individuals who participated in the October/November 2019 protests were less likely to respond to the ELSOC survey in the subsequent weeks (as shown below and in Fig. A2, there is little overlap between the protest period and the data collection period). To assess this potential bias, we compare baseline characteristics between stayers and attriters in Table B2. The results show no significant differences between the two groups based on observed characteristics.

**Selection.** Our selection process first involves removing observations with missing values for key variables (approximately 5 % of the initial sample) and then focusing on the working population (retirees and students account for 16 % of the original sample). This selection is simply due to the fact that we analyze protest behavior in relation to a differential measure between of perceived versus actual status, whereby the latter is assessed through employment-related variables, such as income level and occupational prestige, as detailed below. We nonetheless provide sensitivity analysis with alternative selections thereafter. Our final sample comprises 2,277 individuals observed in both 2018 and 2019 (with a 15 % attrition rate between the two years).

### 2.3. Protest outcomes

**Protest Behavior and Protest Statistics.** Our key outcome variable

[4] Evidence from the literature connecting relative status and subjective well-being also suggests that associations are stronger when status is measured subjectively rather than objectively (e.g., Ferrer-i-Carbonell, 2005; Ravallion and Lokshin, 2010; Perez-Truglia, 2020; Tan et al., 2020), in line with aforementioned arguments.

[5] Lower-income individuals tend to overestimate their rank and, if made aware of it, increase their support for redistribution (see Cruces et al 2013, for Argentina; Hvidberg et al., 2023, for Denmark; Hoy and Mager 2021, using data on ten countries; Albacete et al 2022, for Austria). Somewhat symmetrically, those who's relative position improves decrease support (Karadja et al 2017, for Sweden). Note that a related literature focuses on (mis)perceptions of inequality. Inequality perception may play a role on redistributive demand and political engagement, as shown in social psychological research (Hauser and Norton, 2017) and economic analyses utilizing country variation (Gimpelson and Treisman, 2018) or country-time variation (Bussolo et al., 2021). Experiments show that discrepancies between actual and perceived inequality levels can go in both directions (some tend to underestimate inequality, e.g. in Osberg and Smeeding 2006, Norton and Ariely 2011; or to overestimate it, e.g., in Chambers et al. 2013). Discrepancies may stem from the fact that subjective views are shaped by personal experiences, societal contexts, and broader notions of inequality that encompass economic insecurity, availability of public goods, etc., in addition to standard income disparities (Bussolo et al, 2021).

is protest participation, defined as a binary indicator of whether an individual engaged in protests over the past 12 months. In sensitivity analyses, we explore individual protest frequency and other forms of social unrest: from softer (e.g., social media activism) to stronger ones (tolerance toward violence); intermediate actions include street protests (our baseline) and banging pots and pans as a collective expression of dissent (the sound of *cacerolazos* became a symbol of unity and resistance, allowing mass participation without requiring physical presence in protests). The 2019 Chilean protests were unprecedented in both scale and frequency compared to previous movements. Between October 18 and the end of 2019, the COES recorded over 3,300 protest events—a stark contrast to 2011, the previous peak year, which saw only 1,100 protests, roughly a third of the 2019 total (Joignant et al., 2020). Regarding protester numbers, we can directly examine statistics derived from our 2019 sample. Appendix Fig. A1 shows that 25 % of individuals in our sample took part in the protests—a figure that aligns well with official COES estimates. Notably, around 80 % of these participants were "new" protesters, highlighting the exceptional mobilization in 2019.

**Timing of Events and Interviews.** For 2019, most protests took place before the survey interviews, ensuring that our ELSOC sample captures protest behaviors relatively accurately. This is illustrated in Appendix Fig. A2, which compares the daily density of protests, based on COES data, with the daily distribution of interviews in the ELSOC survey. However, as precise protest participation dates are not available, we cannot determine the exact time elapsed between an individual's participation and their interview. Nevertheless, this limitation does not fundamentally affect our analysis. More importantly, the number of times a person protested during the October-November 2019 period is available and provides a useful measure of protest intensity, which we incorporate into our sensitivity analyses alongside the other previously mentioned measures (such as social media activism, justification of violence, etc.).

**Protester Description.** In our main estimations hereafter, we focus on the 2019 protest wave, as it was by far the largest. This also allows us to assess the predictive power of the *lagged* social gap, or of the social gap dynamics over several years before the 2019 events. Our empirical strategy avoids using panel estimations over the entire period covered in ELSOC because protests were concentrated in 2019 while protests of the previous years were more marginal and possibly driven by more specific individuals (we address this distinction in our robustness checks). We rather aim to characterize what drives the outstanding large event of 2019. We provide an initial characterization of protesters, with descriptive statistics of protester and non-protesters in 2019 in Appendix Table A1 (columns 1–2). We also perform simple descriptive estimations. We begin with logit estimations of the 2019 protest dummy (column 3). Among the significant correlates, we confirm that protesters were slightly younger on average and more educated.[6] Additionally, indigenous individuals had a 25 % higher likelihood of participating. As we discuss in greater detail later, income matters: protesters tended to belong to the middle and upper-middle class. They were more frequently found among both the unemployed and formally employed workers.

We further refine our analysis using a multinomial logit model to distinguish between new protesters (column 4) and those who had protested at least once before (column 5). While age, education, and income tend to play in the same direction across both groups, some differences emerge: for instance, indigenous individuals were more likely to be repeated protesters, whereas the unemployed were more likely to be new protesters. Our main estimations will allow us to go further by correlating protests with redistributive views, concerns about the cost of living, and, most importantly, our social gap measure.

To ensure the reliability of our results, we draw on external data to assess the representativeness of protest participants in the ELSOC survey. Specifically, we use data from the 2019 survey conducted by the *Centro de Estudios Públicos* (CEP) to compute broad statistics and compare them to the full 2019 ELSOC sample. CEP data, also used by Cox et al. (2024), confirm that protesters are typically younger, more educated, and disproportionately located in Santiago. Our comparison, presented in Table B3, shows that despite the relatively small sample sizes (1,456 for CEP and 3,414 for ELSOC), the proportion of protesters is nearly identical (25 % and 26 %, respectively), and both the absolute and relative profiles of protesters are consistent across the two sources.

### 2.4. Social gap

As motivated before, leveraging subjective measures is crucial to capturing the social dynamics underlying political engagement, particularly protest behavior. We construct a measure of social frustration, referred to as the 'social gap,' defined as the difference between a person's objective social status, based on alternative indicators (income, occupational level, etc.), and her subjective/perceived social status. We now detail these two components.

**Subjective Social Rank.** The ELSOC dataset includes a question on perceived social rank, formulated as follows: "*In our society, some groups are usually at the higher levels, while others tend to be placed at the lower levels. Using the presented scale, where 0 represents the lowest level and 10 the highest, where would you place yourself in Chilean society?*".[7] The distribution of perceived social ranks is reported in the first graph of Appendix Fig. A3. It reveals that very few individuals position themselves at the extremes (with rank 0 merged with rank 1 and ranks 9–10 grouped into rank 8 for visualization), while the majority cluster around ranks 3–5. This pattern reflects a systematic misperception towards the center, commonly referred to as "center bias" (Hvidberg et al., 2023; Bublitz, 2022; Cruces et al., 2013; Karadja et al., 2017), "median bias" (Hoy and Mager, 2021) or "middle-class bias" (Fehr et al., 2022). These biases are well-documented in these studies on voting behavior, redistributive preferences, or perceptions of social mobility. A key implication of this high concentration is that perceived social rank alone is unlikely to be a strong explanatory variable for protest participation. However, the gap between subjective and objective rank may hold greater explanatory power, serving as a proxy for social frustration and perceived downward mobility. Notably, Fig. A3 (first graph) shows a slight decline in subjective rank in 2019 compared to 2018, coinciding with rising social discontent during the protest period. However, we caution against interpreting this shift as a causal driver of protests due to potential reverse causality—individuals exposed to protests may have reassessed their social rank downward. We return to this issue later in the analysis.

**Objective Social Rank.** Assessing social status is challenging. It is possibly multi-dimensional, with context-dependent weights assigned to the different dimensions. Since all these parameters are broadly unknown, we simply use alternative proxies for objective status, which help test the sensitivity of our results throughout the following analyses. A first, standard measure is income decile. While income alone does not fully capture social status, it reflects multiple dimensions of socioeconomic position. However, Bourguignon (2006) and Goldthorpe (2012) argue that an overemphasis on economic indicators may lead social scientists to overlook other critical aspects of social inequality that income alone fails to capture. To address this, our second option is to consider occupational prestige, a widely recognized dimension of social standing. We use the Erikson-Goldthorpe-Portocarero (EGP)

[6] A 10-year increase in age corresponds to a 7-percentage-point lower probability of protesting, approximately one-quarter less than the mean protest probability (27%). Education also plays a key role: individuals with lower education levels were three times less likely to protest.

[7] A few studies use similar measures, for instance Bussolo et al. (2021) focus on individual beliefs about inequality as proxied by the person's perceived position on the income distribution. They find that it is negatively correlated with support for reducing inequality.

classification (Erikson et al., 1979), described in Table A2, though our findings remain consistent across alternative occupational ranking systems. Finally, a third approach integrates multiple dimensions into a composite measure, calculated as the average of income decile, EGP occupational prestige, and education level, each normalized on a 1–10 scale (following Adler et al., 1994). This composite measure provides a broader view of social status beyond any single factor.[8] Note that while income is available all years, information on occupation is only available in 2016 and 2018.

**Social Gap.** The social gap is defined as the difference between objective and subjective social status. For our estimations of protest behavior later on, we will use a standardized measure of the social gap to interpret more easily the magnitude of its effect. For visualization purposes, in the second graph of Fig. A3, we use natural scales for both objective and subjective status. To enhance clarity, we also regroup the few extreme observations. Objective status is defined here according to income deciles. We observe a social gap ranging from −4 to 7, displaying more variability than the distribution of subjective ranks before. This social gap reflects the discrepancy between individuals' actual position and their perceived place in the social hierarchy. Highly positive (negative) values indicate an underestimation (overestimation) of one's actual status. Values near zero, either positive or negative, denote smaller misperceptions. Yet, it is evident that zero itself cannot be interpreted as a perfect alignment of perceived status with one's actual position.[9] Given that subjective ranks tend to fluctuate more rapidly than objective ones, we expect the social gap to increase in 2019 compared to 2018, as subjective rankings decline slightly. This pattern is confirmed in Fig. A3 (second graph). Alternative measures of objective status lead to a slightly more concentrated distribution, especially when education is used in the combined index (third graph).

**Time Trends.** We hypothesize that a large social gap contributes significantly to protest participation. To illustrate this intuition, Fig. 1 presents a series of graphs first depicting trends in the social gap. The gap is now standardized and alternatively defined using household income, occupation or the combined measure for objective status (graphs 1–3). Recall that we can calculate social gaps only for years 2016 and 2018 when occupation is used (alone or in the composite measure). Each graph differentiates between those who never protest in 2016–2019 (blue), those who protest in 2019 (red) and the overall sample (purple).

The first key observation is that protesters exhibit a higher level of social frustration, as measured by the social gap, while non-protesters show a lower level. These broad statistics anticipate our main results, which are further developed in the next section. Secondly, the social gap increases between 2017 and 2019 among 2019 protesters, whereas for non-protesters, the trend is declining (over 2016–18). These initial statistics suggest that individuals who feel increasingly misaligned with their actual economic rank are more likely to engage in protests, reinforcing the role of perceived social status in shaping political mobilization. We also compare these patterns to trends in redistributive preferences (fourth graph), based on a question about perceived income distribution unfairness. Unlike the social gap, this measure shows a continuous increase across all groups (protesters and non-protesters), indicating growing social discontent with inequality in the years preceding the 2019 events. However, much like the self-focused concern captured by the social gap, the divide between protesters and non-protesters widens over time. These findings suggest that a growing perception of relative social decline, potentially coupled with increasing discontent over inequality, could serve as an early warning signal for protest mobilization.

### 2.5. Empirical approach

Our empirical analysis begins by outlining the characteristics of protesters. We particularly focus on their position within objective status scales (i.e., household income deciles or occupational levels), subjective ranks, and along the social gap scale. We also present a series of non-parametric estimations aimed to further validate the informational relevance of this measure. We demonstrate that detailed values of the social gap provide significant informational content beyond detailed positions along household income or occupational scales. As explained, we systematically use the lagged gap in this analysis. We refrain from using the contemporaneous social gap, as it is recorded post-protest (see Fig. A2) and may be affected by exposure to protests (Madestam et al., 2013).

We then turn to more standard linear estimations. We specify 2019 protest participation as a function of the (lagged) social gap. This cross-sectional model is written:

$$Protest_{i,2019} = \alpha + \beta Gap_{i,2018} + \boldsymbol{X}_i'\boldsymbol{\gamma} + \varepsilon_i \quad (1)$$

with $Protest_{i,2019}$ denoting the binary protest variable (equal to 1 if individual $i$ participated in protests at least once during year 2019, and 0 otherwise) and $Gap_{i,2018}$ the lagged social gap. We include a set of controls $\boldsymbol{X}_i$, comprising socio-demographic variables (gender, age, education, married, region of residence), household income and broad employment variables (unemployed, informal worker, with formal worker or inactive as reference group). For those of these variables that are time-varying, we use contemporaneous values, since they simply aim to characterize protesters, as in the previous descriptive estimations. We nonetheless check that results are similar if we lag them as well. Sensitivity analyses include alternative definitions of the social gap and alternative protest outcomes (including soft versus violent forms of protests and, for the different forms, an intensive margin of the frequency of participation).

We also explore the contribution of social gap dynamics preceding the 2019 events. To do so, we estimate a model of 2019 protests that includes the 2017 social gap and its change between 2017 and 2018, to capture the contribution of a rise in the frustration feeling:

$$Protest_{i,2019} = \alpha + \beta_1 Gap_{i,2017} + \beta_2 \Delta Gap_{i,2018-2017} + \boldsymbol{X}_i'\boldsymbol{\gamma} + \varepsilon_i \quad (2)$$

We shall report estimates using alternative social gap definitions. Since the occupation-based proxy for objective status is available only for 2016 and 2018, we adopt in that case a version of model (2) focusing on these two years.

Even if protests prior to 2019 are more limited, we will exploit the panel dimension to estimate the following model on the years t = 2016, …,2019:

$$Protest_{i,t} = \alpha_i + \beta_1 Gap_{i,t} + \boldsymbol{X}_{i,t}'\boldsymbol{\gamma} + \varepsilon_{i,t} \quad (3)$$

This model differs somewhat, as it explains protest behavior in general. However, given that protests were particularly frequent in 2019, as documented, this specification should remain consistent with models linking 2019 protests to recent social gap dynamics. Furthermore, while individuals protesting prior to 2019 may represent a more specific group, the model accounts for it since it incorporates (time-invariant) unobserved heterogeneity through individual fixed effects $\alpha_i$. Note that $\boldsymbol{X}_{i,t}$ now includes only time-varying controls.

Finally, social rank misperception might be partly correlated with other individual perceptions, such as those related to living conditions, peer effects, and inequalities, which themselves can affect the propensity to protest. To extract the independent role of our social gap measure, we additionally control for a vector $\boldsymbol{Z}_i$ containing proxies for these different dimensions in our cross-sectional model of 2019 protests:

[8] According to the literature in sociology, psychology, epidemiology and public health, income, occupation status and education represent the material substance of social class and shape the life-trajectories of individuals in profound ways (Adler et al., 1994, Kraus et al 2013).

[9] Indeed, objective and subjective scales are not comparable, partly because subjective status question is framed more broadly.

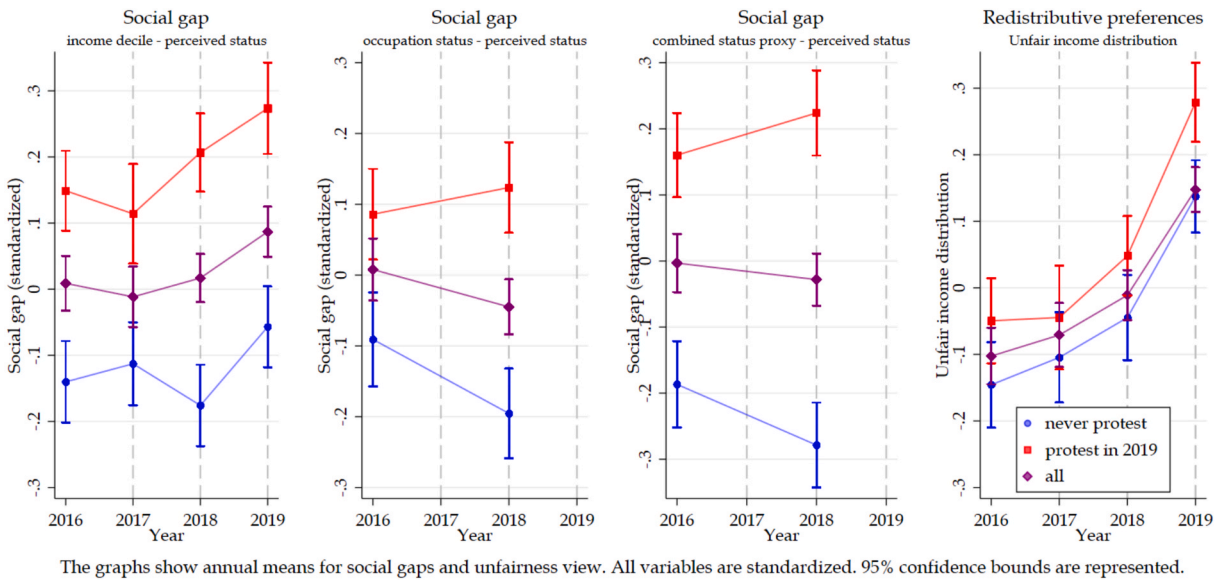



**Fig. 1.** Trends in social gap and redistributive preferences.

$$Protest_{i,2019} = \alpha + \beta Gap_{i,2018} + \boldsymbol{Z}'_{i,2008}\boldsymbol{\delta} + \boldsymbol{X}'_{i}\boldsymbol{\gamma} + \varepsilon_i \quad (4)$$

As with the social gap, the lagged specification reflects the possibility that these variables may influence 2019 protests but could also be shaped by exposure to protest. The variables are as follows. For living costs, we include an individual's anger about the cost of living and self-evaluation of public goods and services. For social comparisons that related to protest propensity, we use a binary variable indicating whether the person's peers, friends or family participated in the 2019 protest. Finally, we account for inequality perception, unfairness feelings and political views. Whether our social gap captures these dimensions to some extent is an open question. The literature has shown that subjective relative status can be intricately related to perceptions of unfairness and redistributive preferences (see e.g. Cruces et al 2013; Kuziemko et al., 2014; Fisman et al. 2020; Hvidberg et al., 2023; Hoy and Mager, 2021; Albacete et al., 2022). For unfairness, we alternatively use information on one's anger about ongoing inequality, perceived unfairness of income distribution, or perceived unfairness of the tax system. Regarding political views, we account for individual preferences for democracy (over authoritarianism) and perception about the extent of corruption issues in Chile. This relatively comprehensive specification enables us to determine whether our social gap measure directly influences the propensity to protest or primarily serves as a mediator shaping perceptions and emotions related to inequities in Chile.

## 3. Results

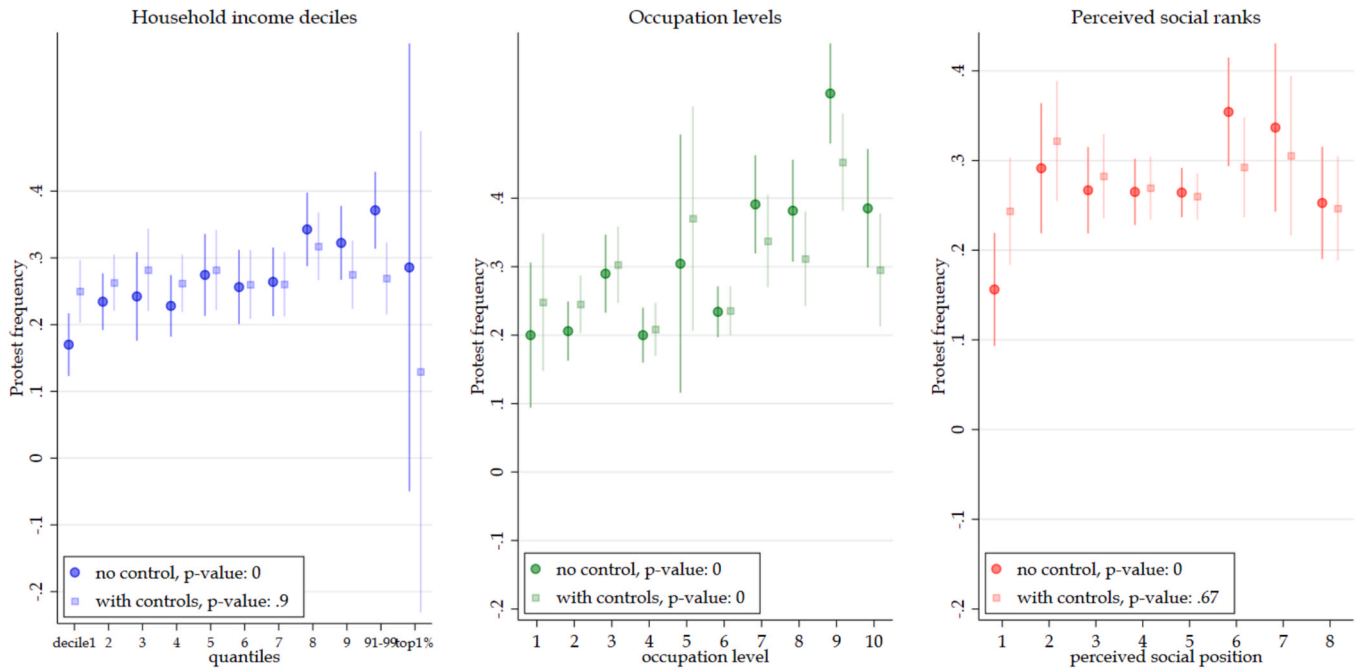
### 3.1. Protests by levels of objective Status, subjective status and social gap

**Objective and Subjective Ranks.** We begin with highly flexible estimations of protest participation based on the components of the social gap, namely objective and subjective social ranks. This analysis of protester distribution across economic/social strata provides key insights into the socioeconomic backgrounds of those most likely to engage in demonstrations. Fig. 2 presents non-parametric estimates of protest rates based on dummies for household income levels (deciles), occupational levels (1–10 scale), or perceived social ranks (simplified 1–8 scale grouping the extremes as in the first graph of Fig. A3). Focusing on estimations without control, we see that, across all three dimensions, protest participation tends to increase with socioeconomic rank. This pattern aligns well with established research suggesting that socio-economically disadvantaged individuals participate less in political activities (e.g., Solt, 2008). It holds here for both objective status (i.e. based on household income and occupation) and subjective perceptions of status. Note that the pattern is not strictly monotonic.[10]

Overall, we find that protest participation is highest among the (objectively and subjectively defined) middle and upper-middle class. However, Fig. 2 shows that this pattern becomes less pronounced once controls are introduced, namely socio-demographic characteristics, employment status, and, most importantly, linear household income. This is confirmed by the reported p-values testing the joint significance of group dummies for income, occupation, or their combination. For social gaps based on income (1st graph), this result is unsurprising, given the relatively linear household income gradient observed earlier. The inclusion of linear income also reduces the informational content of subjective ranks (3rd graph), despite their moderate correlation with income deciles (0.29), likely because subjective ranks are highly concentrated around central values, as previously noted. Nonetheless, combining them with objective status into a social gap measure may be particularly relevant, as we now demonstrate.

**Social Gap Levels.** We proceed with flexible estimations of protest participation on the social gap, namely using dummies for the different gap levels. Fig. 3 presents the estimated coefficients, each panel corresponding to a different social gap definition (i.e. objective status proxied by household income deciles, occupational levels, or a composite index). For each case, we report social gap coefficients for models with vs. without standard controls. Results display a clear upward pattern. Subtitles report p-values for the null hypothesis that social gap dummies are jointly null, which is clearly rejected regardless of the objective status metric used. Unlike the rank measures in Fig. 2, this holds even after controlling for socio-economic variables, particularly linear

[10] While protest rates generally rise with income, occupation, and social rank, they tend to decline slightly at the very top, though this often affects a very small minority. For household income specifically (first graph of Fig. 2), the highest group consists of the top 1%, who demonstrate less frequently than the group just below them (i.e., the 91st–99th centiles). The top 1% is likely highly heterogeneous, and the very wealthy within this group are probably underrepresented in the data, meaning their actual participation rate could be even lower with improved representation. Importantly, those just below, i.e. the 91st–99th centiles, should not be considered "rich" in absolute terms. Household income distribution data, reported in Appendix Fig. A4, shows that the threshold separating the 99th and 100th centiles is approximately PPP US$ 2,300 per month.




Estimation of individual protest on dummies for income decile, occupation level or perceived position.
The legend reports p-value of joint significativity of these sets of dummies, with or without controls (controls include standard socio-demographic variables and linear income).

**Fig. 2.** Non-parametric estimations of protest on income ranks, occupation ranks or perceived ranks.

income. Specifically, individuals who overestimate their status (negative social gap) exhibit lower participation levels, while those with large positive gaps show the highest propensity to protest, conditional on controls. These findings support our hypothesis that perceived misalignment between actual and perceived status is a strong driver of mobilization.

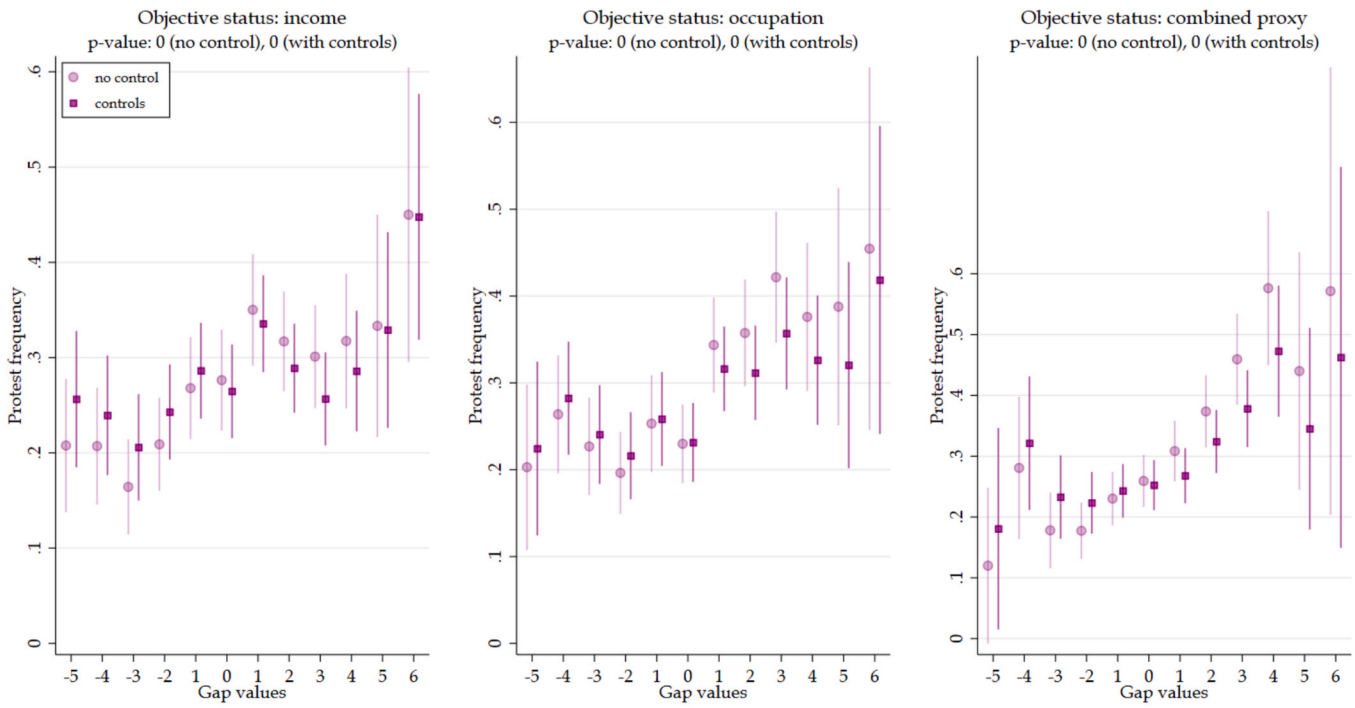
The graphs also convey that the social gap effect is driven both by the difference between positive and negative gaps and by variation within the group with positive gaps; the corresponding estimates are presented in what follows. We also refine our characterization by examining the interaction between social gap values and, for instance, household income levels. Appendix Fig. A5 presents a heat map illustrating protest participation rates across different household income-social gap combinations. To ensure visual clarity and avoid excessively small cells, we regroup observations into five household income quintiles and seven social gap groups. The size of each cell is proportional to the weight of the corresponding income-gap group in the dataset. The figure reveals a consistent pattern: at all household income levels (including among lower-income groups), a higher social gap is associated with increased protest participation.

**Specification Tests.** In Table A3, we present a series of non-parametric estimations designed to further validate the informational relevance of the social gap. We estimate several models of the 2019 protest outcome, progressively introducing different sets of variables. We begin with a baseline model that includes standard socio-demographic and employment controls but *excludes* linear household income (column 0). We then add household income decile dummies (column 1). In addition to income deciles, we introduce either perceived rank dummies (column 2), social gap dummies (columns 3–5), or an interaction between household income decile dummies and social gap dummies (column 6). Panel (a) focuses on linear probability models, primarily used to test the joint significance of different sets of dummies (household income deciles, perceived ranks, etc.). Panel (b) presents log-likelihood tests from logit estimations of nested models, especially to test models 2–6 against model 1. Both approaches lead to the same conclusions. Household income deciles alone do not significantly improve the model when basic controls—particularly education—are included (cf. p-values in column 1, and change in adj. $R^2$ compared to column 0). As expected, adding perceived status ranks to the previous model with income deciles does not enhance explanatory power (cf. p-values in column 2, and change in adj. $R^2$ compared to column1). However, incorporating social gap values into a model that already includes basic controls and household income decile dummies significantly improves the fit (cf. columns 3–5, with zero p-values, regardless of the occupation status measure used to construct the social gap). The model interacting social gap values with household income deciles—mirroring the insights from the heat map—provides the strongest explanatory power (column 6). Yet, its adjusted $R^2$ is lower than that of the more parsimonious models based on social gap values.

### 3.2. *Baseline estimation results, sensitivity analyses and heterogeneity*

In the following, we precisely employ a parsimonious model of protest, using a linear specification of the social gap alongside standard controls, including socio-demographic factors, household income, and employment variables, as specified in Eq. (1).

**Baseline.** We begin with the cross-sectional model of the 2019 protests, as specified in equation (1). Baseline results are presented in




Estimation of individual protest dummy on social gap levels (-5 to 6), using alternative definitions (objective status: income deciles, occupation ranks or combine index).
Estimations with controls include: standard socio-demographic variables and linear income.

**Fig. 3.** Non-parametric estimations of protest on social gap levels.

Table 1, with a focus on the coefficient of the (lagged) social gap. The remaining coefficients (not reported) are very similar to those in Table A1 and previously commented. Models (1)–(1″) correspond to the three alternative occupational status measures used to construct the social gap. Since the gap is standardized, the coefficients are easily interpretable: a one standard deviation increase in the social gap is associated with a 3.5 to 5.7 percentage point increase in protest frequency across models. This corresponds to a 12–19 % rise in protest participation or an 8–23 % increase in the standard deviation of protest frequency (see relative effects in the lower rows of the table). This magnitude is substantial and, as we shall further discuss, does not weaken when adding closely related emotional factors that potentially contribute to protests as well (such as anger over living costs and perceived inequality).

**Robustness Checks: Selection.** Recall that we have excluded students and retirees, which may limit the analysis. Yet, it is consistent with our focus on social gaps combining objective and subjective status, the former relying on income or occupation. For students, income data are often tied to parents and occupational status is typically absent or uninformative. Retirees are excluded based on pension receipt ('pensioners'), not age. Pensioners account for a small share of the sample (less than 5 %), and reintroducing them into the analysis does not affect the results, as shown in the online appendix Table B4.

**Robustness Checks: Sensitivity to Controls.** We perform sensitivity checks with respect to control variables. In our baseline specification, controls $\boldsymbol{X}_i$ simply aim to characterize protesters, as in descriptive estimations, and to maximize the model's explanatory power. However, these variables are self-reported and those that vary over time are potentially endogenous to protest behavior: for example, income may decline as a result of participating in protests. To address this concern, we replicate our estimations using lagged versions of time-varying controls. This alternative approach also ensures consistency in the definition of household income, aligning the (lagged continuous) income control variable with the (lagged) income ranks used to construct the social gap as an objective status measure. As shown in columns (1) to (1″) of Table A4, very similar results are obtained.

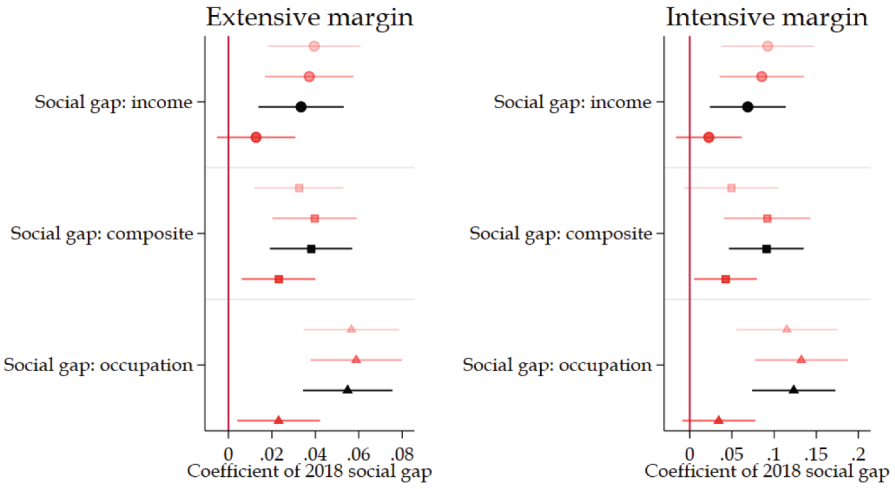
Next, we also augment the model with (continuous) occupational status, alongside (continuous) income, as reported in columns (1) to (1″) of Table A5. In this case, the results hold when household income or a composite index are used to proxy objective status. However, the social gap effect is no longer significant when objective status is based on occupation. This likely reflects the difficulty in disentangling this effect from that of occupational level itself: variation in the subjective component or potential non-linearities in occupational effects may not be sufficient, particularly given earlier findings that the impact of occupational status is relatively linear. We nonetheless emphasize that the social gap effect is better identified—and remains significant—when using the composite index, which combines occupation with income and education.

**Alternative Specification: Dynamics.** We also examine

**Table 1**
Baseline estimations of protest, dynamics and fixed effect model.

| | Baseline | | | Dynamics | | | | Panel FE regression | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Dep. var.: | 2019 Protest dummy | | | 2019 Protest dummy | | | | Protest dummy, all years | | |
| Objective status used for social gap: | Income (1) | Occupation (1′) | Composite (1″) | Income (2) | Income (2′) | Occupation (2″) | Composite (2‴) | Income (3) | Occupation (3′) | Composite (3″) |
| Social gap, 2018 | 0.036*** | 0.039*** | 0.056*** | | | | | | | |
| | (0.011) | (0.010) | (0.010) | | | | | | | |
| Social gap, 2017 | | | | 0.041*** | | | | | | |
| | | | | (0.016) | | | | | | |
| Change in Social gap 2017–18 | | | | 0.027* | | | | | | |
| | | | | (0.014) | | | | | | |
| Social gap, 2016 | | | | | 0.051*** | 0.031* | 0.074*** | | | |
| | | | | | (0.016) | (0.016) | (0.018) | | | |
| Change in Social gap, 2016–18 | | | | | 0.029** | 0.045*** | 0.061*** | | | |
| | | | | | (0.014) | (0.015) | (0.017) | | | |
| Social gap | | | | | | | | 0.020*** | 0.027** | 0.025* |
| | | | | | | | | (0.006) | (0.011) | (0.013) |
| **Relative effects of:** | +1 s.d. in 2018 social gap | | | +1 s.d. in social gaps of both years | | | | +1 s.d. in social gap | | |
| in % of protest mean | 12 % | 14 % | 19 % | 14 % | 18 % | 11 % | 26 % | 12 % | 16 % | 15 % |
| in % of protest std. dev. | 8 % | 9 % | 12 % | 9 % | 11 % | 7 % | 16 % | 5 % | 7 % | 7 % |
| Protest: mean | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.17 | 0.17 | 0.17 |
| Protest: std. dev. | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.37 | 0.37 | 0.37 |
| # obs | 2105 | 2105 | 2105 | 1386 | 1427 | 1226 | 1128 | 8858 | 2518 | 2516 |
| R2 | 0.122 | 0.124 | 0.130 | 0.153 | 0.145 | 0.136 | 0.143 | 0.533 | 0.652 | 0.651 |
| Adj. R2 | 0.113 | 0.115 | 0.120 | 0.139 | 0.131 | 0.119 | 0.125 | n.a. | n.a. | n.a. |

Note: all estimation control for socio-demographics (male, age, married, education, indigenous), household income, work status, and region. For models 1–1″, we use a common sample (i.e. observations for which income, occupation and perceived ranks are available) for the sake of comparability. Robust standard errors clustered at individual level and indicated in parentheses. Significance levels indicated as: *** p < 0.01, ** p < 0.05, * p < 0.1.




*Violence justified against public transport infrastructure.
Extensive margins denote individual binary variables (for protesting through social media, banging 'cacerole', taking part in street protest, or thinking that violence is justified). Intensive margins correspond to the number of protest occurrences of each type.

Additional note to Fig. 4: Correlation matrix

| | social media | cacerole | street protests |
|---|---|---|---|
| cacerole | 0.396 | | |
| street protest | 0.345 | 0.345 | |
| justified violence | 0.205 | 0.205 | 0.205 |

**Fig. 4.** Estimations for alternative protest outcomes.

specifications that incorporate the dynamics of the social gap, as suggested in Eq. (2). First, model (2) in Table 1 uses the 2017 social gap level and its change over 2017–2018, with household income as the objective status. Both factors contribute to protest participation: the level of social frustration two years prior to the protests and its reinforcing dynamics over 2017–2018. This pattern aligns with the discussion around Fig. 1 and the idea that a wave of discontent had begun to grow and is effectively captured by our measure.[11] If we compute relative effects, assuming a one standard deviation increase in the 2017 social gap that persists in 2018, we observe, as reported, an increase in protest frequency of 14 % (or a 9 % increase in the standard deviation of protest frequency). Then, we may want to extend our results to other social gap definitions. However, occupation data is only available for 2016 and 2018, so we must focus on these two years in this case. As reported in columns (2′) to (2‴) of Table 1, we find that the baseline effects of the 2016 social gap level and its 2016–2018 change are relatively similar to previous findings, even if orders of magnitude change across the different social gap definitions. In relative terms, a one standard deviation increase in the 2016 social gap (persisting in 2018) leads to a 11–26 % increase in protest frequency across models.

**Alternative Specification: Panel Estimations.** Fixed effects (FE) panel estimations may be less informative in our framework, as they are better suited to recurrent behaviors, which is usually not the case of protest participation. Our main analysis focuses on the massive 2019 protests, which involved about 29 % of the sample, unlike earlier years with fewer participants, likely reflecting a more specific group. Despite these limitations and some panel attrition, it may be interesting to examine FE estimations. As previously noted, the FE model outlined in equation (3) and estimated over 2016–2019 characterizes protest behavior more generally, but the high incidence of protests in 2019 ensures consistency with models focused on that year. Moreover, by incorporating individual fixed effects, it accounts for time-invariant unobserved heterogeneity, including the distinct nature of earlier protesters. Results are reported in columns (3) to (3‴) for the three social gap definitions. While coefficients are slightly smaller than in models of 2019 protests, the 2016–2019 protest rate is also smaller (17 %), so that relative effects are similar to the baseline, namely 12 %–16 % of protest mean across models.

**Alternative Outcomes.** We explore alternative forms of protest, including social media activism, *cacerolazos* (i.e. saucepan banging), street protests (our baseline outcome), and justification of violence. We distinguish between the extensive margin (a dummy variable for each type of protest action, as used so far for street protests) and the intensive margin (the respondent's frequency of participation in each type of action during the protest period). Fig. 4 presents the estimated coefficients for both dimensions of protest participation. The results are consistent and stable across measures, with similar coefficients observed across softer forms of protest, such as social media activism or cacerolazos, and street protests. Only the most extreme form—justifying violence—produces smaller and sometimes insignificant coefficients. This suggests that social frustration, as we measure it, is primarily a driver of moderate or conventional protest actions, while violent protest may be influenced by additional factors beyond status concerns.[12]

Finally, we report a correlation matrix below Fig. 4. Correlations between different protest modalities (e.g., social media protests, cacerolazos, etc.) are modest: this possibly makes the finding that all modalities are relevant more meaningful, as it suggests that the results are not simply driven by overlap across protest types.

**Heterogeneity.** We now examine heterogeneous effects to better characterize the nature of the social gap's influence. As already shown in the non-parametric estimates of Fig. 3, the effect is driven by individuals who underestimate their life standards (positive gap) compared with those who overestimate them (negative gap), and becomes stronger as the gap widens. Additional heterogeneous estimations, summarized in Fig. 5a, confirm the importance of both the extensive margin—comparing positive and negative gaps—and the intensive margin among those with a positive gap, for whom very large gaps signal strong frustration and a higher propensity to protest.

Additionally, we conduct heterogeneous estimations along socio-demographic variables and political attitudes, as presented in Fig. 5b. For each dimension, we report the contrasted heterogeneous coefficients and show p-values testing the equality of these coefficients. Regarding socio-demographic variables, most of the results are consistent across different definitions of the social gap, indicating stronger protest responses among urban residents, younger and middle-aged individuals, and those with higher education levels, while there is no significant gender difference.[13] Regarding political attitudes, we consider three dimensions: retrovote (whether individuals would vote for or against Piñera if elections were held today), regime preference (whether individuals prefer democracy over a more autocratic regime), and Constitutional change (whether individuals support changing the Constitution or not). The contrast between liberal and conservative attitudes is statistically significant in most cases; protesters are not only overrepresented among left-leaning, pro-democratic, and pro-constitutional change individuals, but these characteristics also make them more responsive to the frustration captured by the social gap measure. More generally, while these findings align with known characteristics of protesters,[14] they reinforce the idea that the social gap is a robust predictor of protest participation across the board, rather than being confined to specific subgroups among demonstrators.

### 3.3. *Estimation results with perceptions as additional protest determinants*

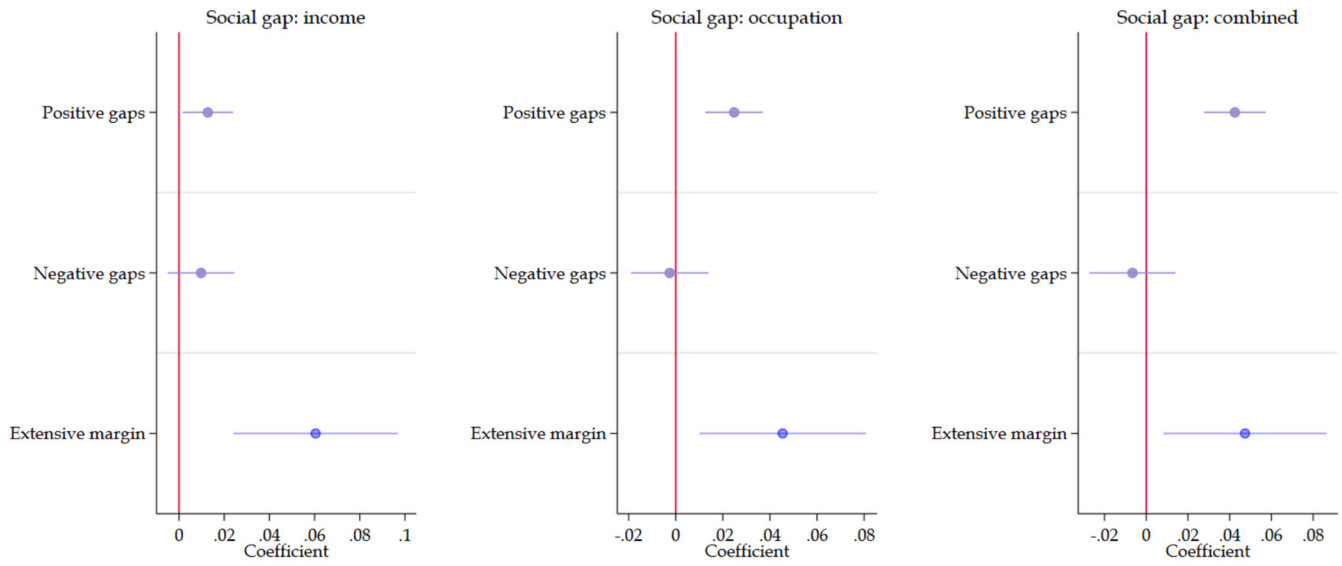
To confirm our interpretation of the social gap and how it influences protest participation, we introduce more standard determinants of protests in the model and assess their potential confounding effects. We use the lagged versions of these protest determinants, as discussed in equation (4), and introduce them sequentially into the baseline model: we begin with perceived living costs and public good valuation, then add peer effects, and finally redistributive and political views. Given the psychological dimension of the social gap, we emphasize that some of these factors also carry an emotional component. Notably, our dataset includes two variables with a relatively original framing for the literature on inequality, as they measure how angry individuals feel about living costs and inequality. Protests are often understood as emotional

[11] It also relates to the theoretical work of Correa et al. (2025), according to which large sudden increases in grievances coordinate behavior far more effectively into protests than a sequence of small grievance shocks that generate the same final distribution of grievances in society. The authors provide an empirical illustration for different waves of protests in Chile including 2019, showing that, even after controlling for grievance levels, large grievance shocks increased the number of protests. Our empirical strategy is different but confirm these findings.

[12] Additional estimations indicate, for instance, that the coefficient difference between violent and non-violent forms of protest diminishes at high levels of anger over inequality or living costs.

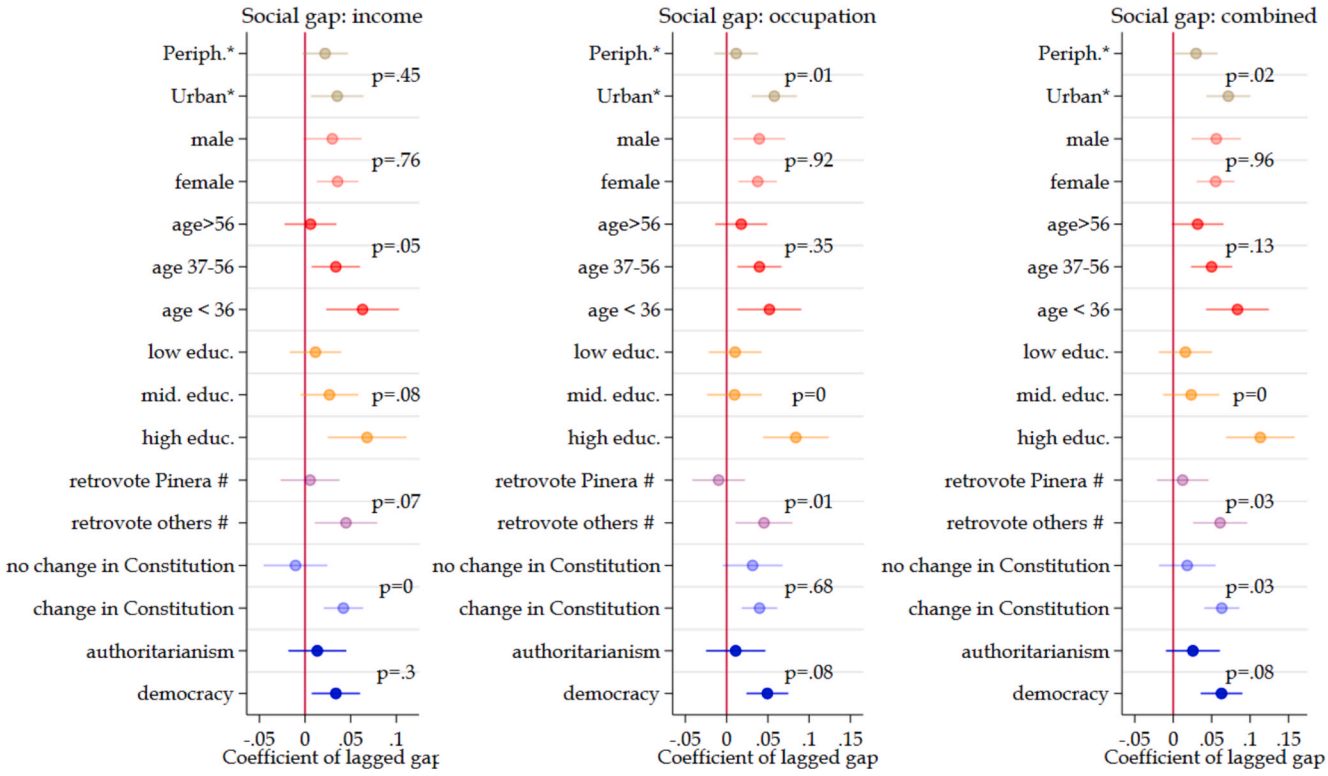
[13] Capturing more local contexts would be interesting but would require larger datasets, for precise estimates of local effects. Our heterogeneity analysis simply provides estimates by very broad place of residence, showing that the social gap effect is mainly driven by urban residents, with weaker or no effects among those living in more peripheral areas. This aligns with broader evidence suggesting that protests in Chile are more likely—and often more intense—among urban populations, which may be due to usual factors (greater access to mobilization channels) but also reflect greater frustration in urban centers where inequality is more visible (see e.g., Álvarez-López et al., 2023).

[14] For instance, protesters tend to be younger and more educated, as analyzed before. They also exhibit greater interest in political issues (Verba et al., 1995) and lean toward left-wing or pro-democratic orientations (Dalton et al., 2010).




Heterogeneity analysis: estimation on protest on positive versus negative social gaps; extensive margin denotes a dummy for the positive gap group.
Bars represent the 95% confidence intervals.

**Fig. 5a.** Heterogeneous effects on protest frequency: negative and positive gaps.




*Periph.: peripherical households, defined as living at above median distance to regional capital (as opposed to urban: below-median)
#Retrovote question about last election (Pinera: conservative party, opposed to 'others' including mainly left parties).
Bars represent the 95% confidence intervals.

**Fig. 5b.** Heterogeneous effects on protest frequency: individual characteristics.

**Table 2**
Estimations of protest on lagged social gap and perceptions.

| | Dep. var.: 2019 protest dummy | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| *Objective status: income* | | | | | | | | |
| Social gap | 0.036*** | 0.031*** | 0.031*** | 0.029*** | 0.031*** | 0.031*** | 0.030*** | 0.026*** |
| | (0.010) | (0.010) | (0.010) | (0.010) | (0.010) | (0.010) | (0.010) | (0.010) |
| Public good valuation | | −0.026 | −0.027 | −0.027 | −0.028 | −0.029 | −0.028 | −0.028 |
| | | (0.022) | (0.022) | (0.022) | (0.022) | (0.022) | (0.022) | (0.022) |
| Anger at life cost | | 0.070*** | 0.065*** | 0.063*** | 0.062*** | 0.033** | 0.042*** | 0.046*** |
| | | (0.010) | (0.010) | (0.010) | (0.010) | (0.013) | (0.011) | (0.011) |
| Peers protest | | | 0.181*** | 0.179*** | 0.182*** | 0.176*** | 0.178*** | 0.172*** |
| | | | (0.016) | (0.016) | (0.016) | (0.016) | (0.016) | (0.016) |
| Unfair: income differences | | | | 0.030*** | | | | |
| | | | | (0.009) | | | | |
| Unfair: tax system | | | | | 0.019** | | | |
| | | | | | (0.010) | | | |
| Anger at inequalities | | | | | | 0.044*** | | |
| | | | | | | (0.011) | | |
| Combined unfair/inequality | | | | | | | 0.039*** | 0.034*** |
| | | | | | | | (0.008) | (0.008) |
| Support democracy | | | | | | | | 0.094*** |
| | | | | | | | | (0.018) |
| Corruption issue | | | | | | | | 0.061** |
| | | | | | | | | (0.030) |
| # obs | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 | 2322 |
| R2 | 0.110 | 0.125 | 0.153 | 0.156 | 0.155 | 0.158 | 0.160 | 0.172 |
| Adj. R2 | 0.106 | 0.120 | 0.148 | 0.151 | 0.149 | 0.153 | 0.155 | 0.166 |
| *Objective status: occupation* | | | | | | | | |
| Social gap | 0.039*** | 0.037*** | 0.034*** | 0.033*** | 0.034*** | 0.033*** | 0.032*** | 0.027*** |
| | (0.010) | (0.010) | (0.010) | (0.010) | (0.010) | (0.010) | (0.010) | (0.010) |
| # obs | 2082 | 2082 | 2082 | 2082 | 2082 | 2082 | 2082 | 2082 |
| R2 | 0.103 | 0.124 | 0.154 | 0.157 | 0.156 | 0.159 | 0.162 | 0.174 |
| Adj. R2 | 0.099 | 0.119 | 0.149 | 0.152 | 0.150 | 0.153 | 0.156 | 0.168 |
| *Objective status: composite* | | | | | | | | |
| Social gap | 0.057*** | 0.052*** | 0.049*** | 0.047*** | 0.048*** | 0.048*** | 0.046*** | 0.039*** |
| | (0.011) | (0.011) | (0.011) | (0.011) | (0.011) | (0.010) | (0.010) | (0.011) |
| # obs | 2011 | 2011 | 2011 | 2011 | 2011 | 2011 | 2011 | 2011 |
| R2 | 0.112 | 0.131 | 0.160 | 0.162 | 0.162 | 0.165 | 0.167 | 0.178 |
| Adj. R2 | 0.108 | 0.125 | 0.154 | 0.157 | 0.156 | 0.159 | 0.161 | 0.172 |

Note: estimation of 2019 protests on lagged social gap, lagged perception variables regarding living costs, public goods, peer effects, inequality and unfairness views and politics. All estimations control for socio-demographics (male, age, married, education, indigenous), household income, work status and region. The "combined unfair/inequality" is the first component of a PCA on the three alternative variables: perceived unfairness regarding income differences, perceived unfairness regarding the tax system, and anger at inequalities. Robust standard errors indicated in parentheses. Significance levels indicated as: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

reactions to perceived unfairness (Passarelli and Tabellini, 2017), which can relate to personal grievances—such as relative deprivation, perceived social status, or living costs—or to concerns about broader societal injustice, such as inequality aversion. According to Rhodes-Purdy and Rosenblatt (2021), protests in Chile reflect a "primal outburst of rage and frustration" triggered by an elitist political structure that has historically stifled participatory opportunities.

The results are presented in Table 2. The upper panel focuses on estimations where household income is used as the objective status for constructing the social gap, but similar conclusions regarding the social gap effect are obtained with occupation or the composite measure, as reported in middle and lower panels (note that other protest determinants also have very similar coefficients in this case).

**Living Costs and Public Good Valuation.** We begin with the baseline model (column 1), comprising standard controls (socio-demographic characteristics, household income and employment status), and introduce the living costs variable, which captures both individuals' valuation of public goods and services and their anger over living costs (column 2). Both variables show the anticipated signs: individuals who rate public services poorly or express frustration over the cost of living are more likely to participate in protests (note that public services valuation is not significant in this specification). Controlling for these factors only slightly reduces the effect of the social gap, which remains highly significant—suggesting that two sources of self-centered economic grievances, i.e. the gap in perceived status and concerns over living costs, act as complementary drivers of protest participation.

**Peer Effects.** The social gap depends on one's status perception, which may inherently relate to some reference points, while individuals may also be influenced directly by others in terms of protest behavior (e.g., Acemoglu et al., 2018). To account for a potential co-determination of these two types of relativities, we introduce a measure of peer influence, namely the protest participation of friends and family members (column 3). Our coefficient of interest is barely affected, indicating that perceived relative status and peer effects constitute distinct dimensions of other-dependent behavior.

**Unfairness and Inequality Perception.** Perhaps the most important set of controls pertains to social preferences. Social frustration can influence redistributive demands together with other-oriented concerns, such as altruism or value-driven inequality aversion. Columns (4)–(7) present estimates from a model that sequentially introduces different measures of perceived unfairness: unfairness in income distribution, unfairness in the tax system, anger over inequalities, and the first component of a principal component analysis over these three variables. In all three cases, the social gap coefficient decreases only marginally, reinforcing the idea that perceived personal economic standing is distinct from, yet complementary to, broader redistributive concerns,

maybe because these redistributive preferences primarily reflect other-oriented considerations and a broader sense of unfairness in Chilean society.[15]

**Political Views.** Finally, political engagement and protests are not solely driven by redistributive views—they also intersect with broader political demands. To account for this, we extend our analysis by incorporating individuals' political views (column 8). Our findings show that preference for democracy (over authoritarianism) is strongly associated with protest participation. Concerns over corruption do not appear significant in this specification but this is primarily due to the sequencing of variable introductions (as corruption concerns are positively correlated with perceptions of unfairness and democracy). Most importantly, the coefficient on the social gap slightly decreases but remains highly significant. In other words, the social gap is not entirely determined by protesters' ideological alignment: there is enough variation in social frustration among anti-conservative voters to drive distinct protest behaviors and identify the independent effect of the social gap. Note finally that similar results regarding the social gap are obtained when other political variables are used, as shown in Table A6 (column 1). We see there that the propensity to protest increases with support for a new Constitution and distrust in the government.

**Perceptions with Social Gap Dynamics.** We have so far focused on the model using the social gap in 2018. However, we can extend the analysis by including both the level of the gap in 2017 and its change from 2017 to 2018 (as in equation (2), while controlling for perception variables. Results, presented in Table A6 (columns 2–5) reveal similar patterns to those in Table 2 concerning the effects of the various perceptions. Notably, they also show significant effects in most specifications—particularly in the final one, which includes all perception controls—for both the level of social frustration in 2017 and its reinforcing dynamics over 2017–2018.

### 3.4. Additional robustness checks

To ensure the robustness of our results, we conduct a series of additional sensitivity checks, presented in Table 3. They include adjustments for personality traits, the exclusion of persistent protesters. For a comparison, columns (1)-(3) replicate baseline estimations including the series of perception variables.

**Adding Perception Dynamics.** We first explore the influence of *changes* in these perception variables. A key concern is that changes in perceptions, such as the perceived unfairness of income distribution, may themselves drive changes in the social gap. In that case, it would not be the social gap per se that might contribute to protest, but rather other underlying factors that affect both the social gap and the decision to protest. As explained above, only some of the perception variables are available before 2019 (public good valuation, unfairness variables and political attitudes): for these, we control for both their 2017 level and their 2017–18 change. The results in columns (4)-(6) of Table 3 show very consistent estimates. Coefficients are still very significant despite an increase in standard errors due to the lack of power caused by panel attrition.

**Psychological Traits and Subjective Well-Being.** The literature highlights that subjective measures are prone to latent heterogeneity in how individuals perceive underlying scales and respond to subjective questions (Ravallion, 2015). This is particularly an issue when the subjective variable is the dependent variable (Bertrand and Mullainathan, 2001). In our case, perceived status is central as it is used to construct the social gap. Unobserved heterogeneity issues in subjective

[15] That the social gap remains a strong predictor even after accounting for perceptions of inequality and redistributive preferences further underlines its novelty relative to classic relative deprivation mechanisms, suggesting that social frustration can operate independently of broader views on fairness and distribution.

**Table 3**
Sensitivity analysis of protest estimations on lagged social gap and perceptions.

| Objective status | Baseline | | | Adding perception dynamics | | | Incl. psychological traits | | | Incl. life satisfaction | | | No hardliners | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Inc. | Occ. | Comp. | Inc. | Occ. | Comp. | Inc. | Occ. | Comp. | Inc. | Occ. | Comp. | Inc. | Occ. | Comp. |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) |
| Social gap | 0.026*** | 0.027*** | 0.039*** | 0.029** | 0.027** | 0.035** | 0.028** | 0.029** | 0.039*** | 0.026** | 0.027*** | 0.038*** | 0.024** | 0.019* | 0.031*** |
| | (0.010) | (0.010) | (0.011) | (0.014) | (0.014) | (0.015) | (0.013) | (0.013) | (0.014) | (0.010) | (0.010) | (0.011) | (0.010) | (0.010) | (0.011) |
| Public good valuation | −0.028 | −0.009 | −0.015 | −0.023 | −0.006 | −0.011 | −0.011 | 0.001 | −0.004 | −0.030 | −0.010 | −0.016 | −0.021 | 0.001 | −0.005 |
| | (0.022) | (0.023) | (0.024) | (0.031) | (0.032) | (0.032) | (0.028) | (0.030) | (0.030) | (0.022) | (0.023) | (0.024) | (0.022) | (0.023) | (0.024) |
| Anger at life cost | 0.046*** | 0.058*** | 0.055*** | 0.045*** | 0.065*** | 0.063*** | 0.040*** | 0.058*** | 0.055*** | 0.046*** | 0.058*** | 0.054*** | 0.043*** | 0.053*** | 0.051*** |
| | (0.011) | (0.012) | (0.012) | (0.014) | (0.015) | (0.015) | (0.014) | (0.015) | (0.015) | (0.011) | (0.012) | (0.012) | (0.011) | (0.012) | (0.012) |
| Peers protest | 0.172*** | 0.181*** | 0.180*** | 0.161*** | 0.174*** | 0.175*** | 0.157*** | 0.168*** | 0.169*** | 0.173*** | 0.181*** | 0.181*** | 0.160*** | 0.168*** | 0.168*** |
| | (0.016) | (0.018) | (0.018) | (0.021) | (0.022) | (0.022) | (0.020) | (0.022) | (0.022) | (0.016) | (0.018) | (0.018) | (0.016) | (0.017) | (0.018) |
| Combined unfairness | 0.034*** | 0.036*** | 0.035*** | 0.042*** | 0.038*** | 0.037*** | 0.034*** | 0.032*** | 0.031*** | 0.033*** | 0.035*** | 0.034*** | 0.033*** | 0.036*** | 0.034*** |
| | (0.008) | (0.009) | (0.009) | (0.013) | (0.014) | (0.014) | (0.010) | (0.011) | (0.011) | (0.008) | (0.009) | (0.009) | (0.008) | (0.009) | (0.009) |
| Support democracy | 0.094*** | 0.095*** | 0.090*** | 0.150*** | 0.147*** | 0.147*** | 0.113*** | 0.115*** | 0.110*** | 0.092*** | 0.093*** | 0.088*** | 0.081*** | 0.081*** | 0.077*** |
| | (0.018) | (0.019) | (0.020) | (0.030) | (0.031) | (0.032) | (0.022) | (0.024) | (0.025) | (0.018) | (0.019) | (0.020) | (0.018) | (0.019) | (0.020) |
| Corruption issue | 0.061** | 0.085** | 0.084** | 0.049 | 0.032 | 0.033 | 0.048 | 0.032 | 0.034 | 0.062** | 0.086** | 0.085** | 0.062** | 0.088*** | 0.087*** |
| | (0.030) | (0.034) | (0.034) | (0.041) | (0.047) | (0.047) | (0.039) | (0.047) | (0.047) | (0.030) | (0.034) | (0.034) | (0.030) | (0.033) | (0.033) |
| # obs | 2322 | 2082 | 2011 | 1205 | 1120 | 1083 | 1366 | 1242 | 1197 | 2319 | 2079 | 2008 | 2264 | 2024 | 1955 |
| R2 | 0.172 | 0.174 | 0.178 | 0.191 | 0.195 | 0.199 | 0.202 | 0.202 | 0.206 | 0.173 | 0.175 | 0.179 | 0.156 | 0.157 | 0.161 |
| Adj. R2 | 0.166 | 0.168 | 0.172 | 0.179 | 0.181 | 0.185 | 0.190 | 0.190 | 0.193 | 0.167 | 0.168 | 0.172 | 0.150 | 0.150 | 0.154 |

Note: estimation of 2019 protests on lagged social gap, lagged perception variables regarding living costs, public goods, peer effects, inequality and unfairness views and politics. For social gap definitions, objective status is measured as income ("Inc."), occupation ("Occ.") or composite ("Comp."). All estimations control for socio-demographics (male, age, married, education, indigenous), household income, broad employment information (unemployed, informal worker, ref: formal worker & inactive) and region. The "combined unfairness" is the first component of a PCA on the different perceived unfairness views regarding income differences and the tax system. Robust standard errors indicated in parentheses. Significance levels indicated as: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

answers may be seen as some noise that could attenuate the estimated effect. The issue is sometimes treated by including FE in panel estimation. A second treatment hinges on the use of vignette to anchor individual response subjectivity (e.g., Bago d'Uva et al., 2008; Beegle et al., 2012). A third commonly used approach is to control for personality traits, which act as a proxy for individual fixed effects (Akay and Karabulut 2020; Budría and Ferrer-i-Carbonell, 2019). In the present setting, we do not avail of vignette but have performed panel FE estimations (cf. Table 1, last three columns). While showing consistent results, their interpretation was slightly different since they captured general protest behaviors rather than the participation to the 2019 demonstrations. We then opt here for the third option, introducing personality traits in our analysis. They include characteristics such as being reserved, sociable or nervous. While none of these traits significantly influence protest behavior—except for a significant negative effect of being "reserved"—they are jointly significant. Notably, these traits are only available for 2017, and we assume they remain time-invariant for use in analyzing 2019 protests. The results in columns (7)-(9) remain broadly unchanged, despite a decline in sample size and the resulting loss of precision. Finally, another way to account for individual idiosyncrasies is to control for a subjective variable that may exhibit similar overstatement or bias as subjective status. We use life satisfaction for this purpose. Estimates reported in columns (10)–(12), which include this control, again yield very similar results.

**Hardliners/Always Protesters.** The group of protesters consists primarily of 'new' participants, as previously discussed. However, we have also identified a specific subgroup of highly engaged protesters, particularly those who participate in protests annually ('hardliners'). Panel estimations on year 2016–2019 capture an overall effect of social gaps on protesting at any year while accounting through FE for the intrinsic nature of these different population groups. In the same logic, we can replicate our (cross-sectional) estimations of 2019 protests with perception controls on a subsample that excludes the hardliners, in order to assess the impact of this group on our main results. Results in columns (13)-(15) remain highly stable, confirming that the observed effects are not driven by a minority of recurrent protesters.

## 4. Concluding remarks

This study offers new insights into the determinants of major protests in Chile. We confirm that the probability of protesting increases with socio-economic status, measured by household income or occupational level. However, we also challenge conventional perspectives that focus solely on relative income or income inequality as predictors of protest behavior. Our findings suggest that individuals' perceptions of their own status—relative to their actual economic and social position—play a significant role in shaping their likelihood of engaging in protests. We focus on this social gap measure—the difference between objective and subjective status—and show that it brings explanatory power to protest models beyond socio-demographic and economic factors. We analyze the dynamics preceding the events and identify a cumulative effect: protest propensity increases not only with the initial level of the social gap but also with any widening of this gap in the lead-up to the protests. Future research should explore exogenous and measurable variations in the social gap to establish a stronger causal link with protest behavior.

Another key contribution of this paper is the possibility to enrich the model with a comprehensive set of protest determinants, either self-interest motivations (such as living costs) or more other-oriented dimensions (such as inequality aversion and political views). In particular, some of these variables capture psychological dimensions (e.g., anger at inequality), in the same vein as our social gap measure. We find that the social gap strongly complements, rather than overlaps with, other self-interest drivers of political mobilization including individual perceptions of public service quality and anger over the cost of living. Perhaps most importantly, given the extensive literature on redistributive preferences, we find that social frustration is not mediated by redistributive views—specifically, perceptions of unfairness in income distribution or tax policies—but instead operates in a complementary manner. Whether these redistributive claims arise from unfairness feelings or more emotional responses (anger about inequality), the social gap maintains strong independent explanatory power. Moreover, social frustration is widely distributed and not merely a reflection of political orientation: it influences protest participation broadly, rather than operating solely through pro-democratic or anti-corruption sentiments. This suggests that economic grievances and perceptions of social status are distinct yet complementary drivers of mass mobilization, alongside broader democratic and political concerns. Ultimately, this research underscores the importance of leveraging subjective perceptions alongside objective socio-economic indicators to explain collective action. In particular, future studies should continue to investigate how perceptions of social standing shape political behavior across different contexts and historical periods.

## CRediT authorship contribution statement

**Olivier Bargain:** Writing – original draft, Validation, Supervision, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **H. Xavier Jara:** Writing – review & editing, Writing – original draft, Supervision, Methodology, Investigation, Conceptualization. **David Rivera:** Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

## Funding

This study has received financial support from the French State in the framework of the Investments for the Future program *IdEx université de Bordeaux/GPR HOPE*.

## 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.

## Acknowledgement

This study has received financial support from the French State in the framework of the Investments for the Future program IdEx université de Bordeaux / GPR HOPE. We are grateful to Yann Algan, Mathias Bergad, Mathieu Bourret-Soto, Loreto Cox, Frank Cowell, Francisco Ferreira, Andrés Irarrázaval, Patricia Justino, Francesco Lissoni, Maria Lo Bue, Quentin Stoeffler, and participants at seminars and workshops (PUC Chile, Bordeaux School of Economics, London School of Economics, LACEA conference, Welfare & Policy conference) for their valuable suggestions. The usual disclaimer applies.

## Appendix A

*Appendix: Figures*

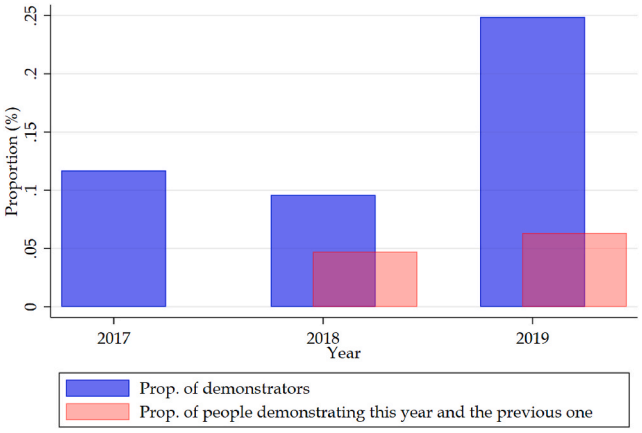



**Fig. A1.** Proportion of demonstrators in the panel

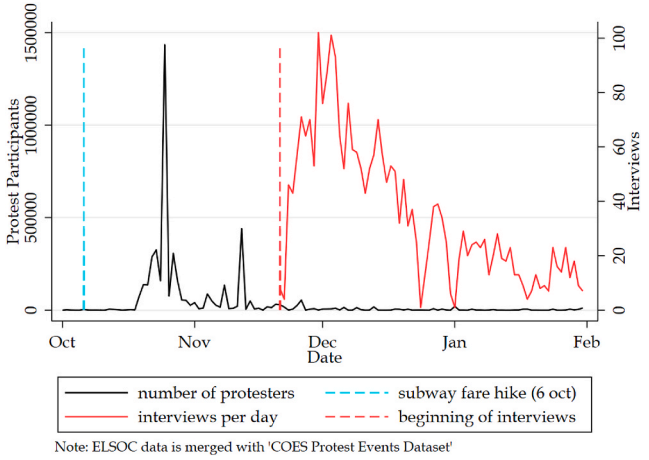



**Fig. A2.** Number of protest participants and interview datefx2

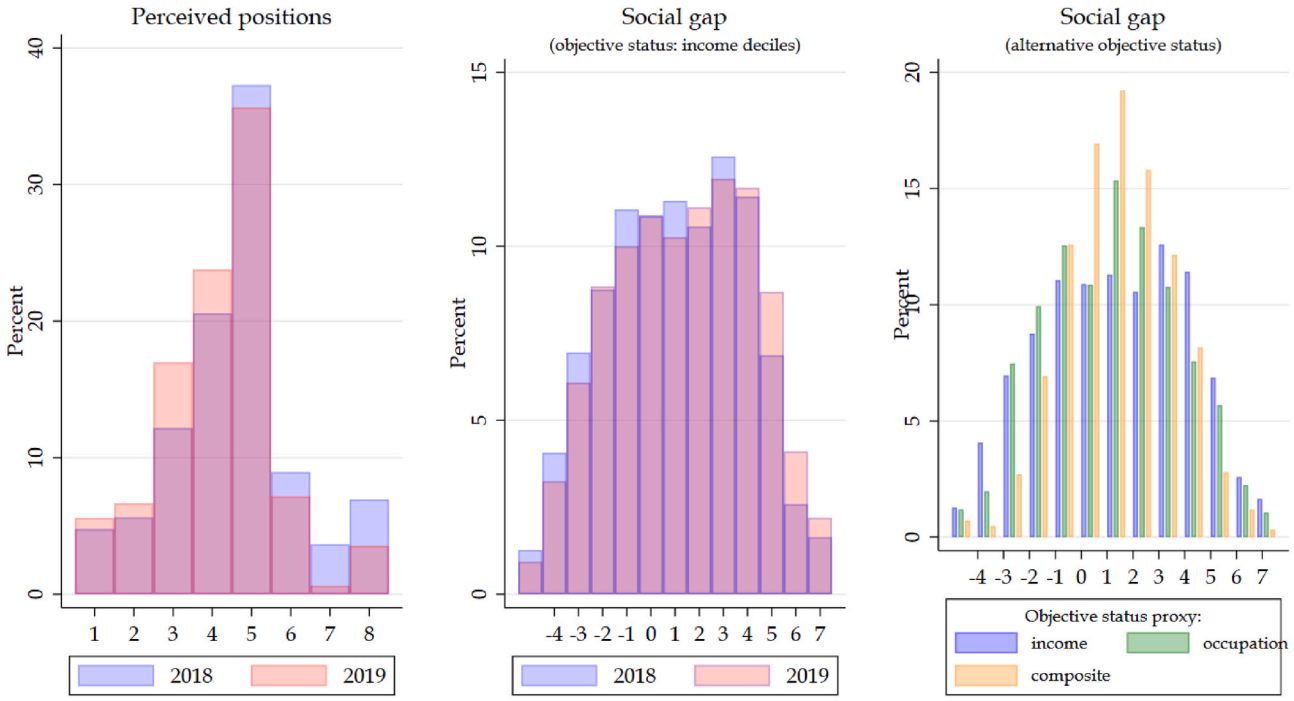



**Fig. A3.** Distributions of perceived status and social gaps

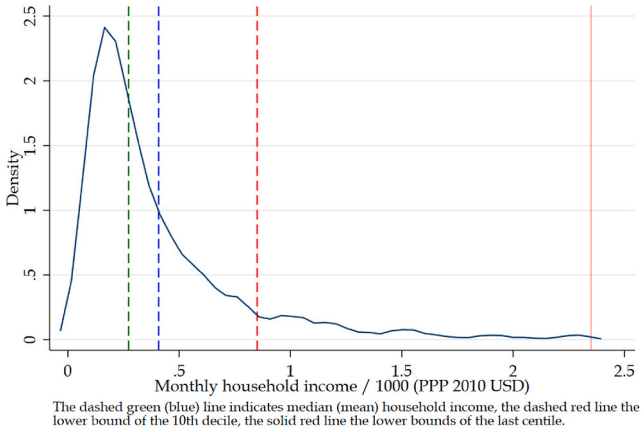



**Fig. A4.** Household income distribution

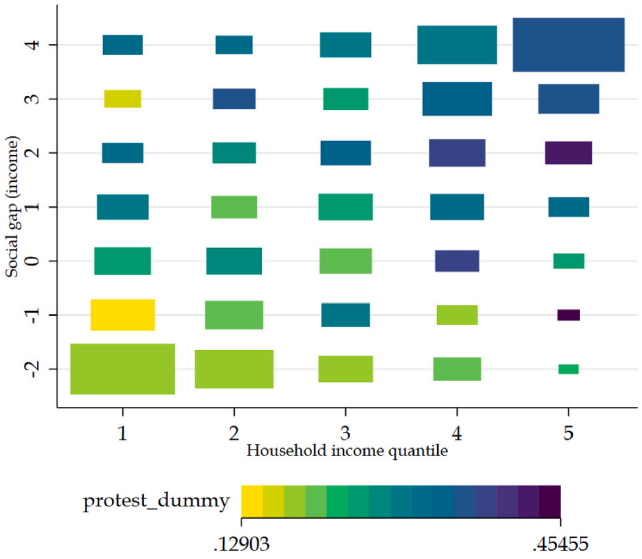



**Fig. A5.** Percentage of protesters by income × social gap cells

*Appendix Tables*

.

**Table A1**
Protesters' characteristics.

| | Mean characteristics (2019) | | Logit | Multinomial Logit (ref: never protest) | |
|---|---|---|---|---|---|
| Dep. var.: | Protesters | Non-protesters | 2019 Protest dummy | Protest in 2019 but not before ('new' protesters) | Protest in 2019 and at least once before |
| | (1) | (2) | (3) | (4) | (5) |
| Male | 0.415 | 0.365 | 0.016 | 0.003 | 0.003 |
| | (0.493) | (0.481) | (0.017) | (0.012) | (0.010) |
| Age | 40.31 | 48.34 | −0.007*** | −0.002*** | −0.003*** |
| | (12.18) | (12.64) | (0.001) | (0.000) | (0.000) |
| Low educ. | 0.0675 | 0.247 | −0.207*** | −0.052*** | −0.073*** |
| | (0.251) | (0.432) | (0.029) | (0.014) | (0.010) |
| Middle educ. | 0.360 | 0.356 | −0.052*** | 0.000 | −0.045*** |
| | (0.480) | (0.479) | (0.018) | (0.012) | (0.009) |
| Indigenous | 0.146 | 0.106 | 0.069*** | 0.018 | 0.076*** |
| | (0.354) | (0.308) | (0.025) | (0.019) | (0.022) |
| Married | 0.322 | 0.394 | −0.009 | −0.004 | −0.001 |
| | (0.468) | (0.489) | (0.018) | (0.012) | (0.010) |
| Household income | 475 | 383 | 0.065*** | 0.026* | 0.026** |
| | (427) | (366) | (0.020) | (0.014) | (0.010) |
| Unemployed | 0.077 | 0.043 | 0.076** | 0.068** | 0.014 |
| | (0.267) | (0.204) | (0.033) | (0.032) | (0.022) |
| Informal work | 0.117 | 0.184 | −0.046* | 0.008 | −0.033*** |
| | (0.322) | (0.388) | (0.024) | (0.017) | (0.011) |
| # obs | 726 | 1,953 | 2676 | 2428 | |
| | | % sample | Log-likelihood | | |
| | 0.27 | 0.73 | −1406.1 | −1393.272 | |

Note: Columns (1)-(2) compare 2019 protesters and non-protesters along socio-demographic and economic characteristics. Column (3) characterize differences by reporting the marginal effects of the logit estimation of 2019 protest participation on the same variables. Columns (4)-(5) reports multinomial logit estimation of protest participation for two groups of 2019 protesters (relative to those who never protest during 2017-19): the 'new' protesters and those who had protested and at least once before. Robust standard errors indicated in parentheses. Significance levels indicated as: *** p<0.01, ** p<0.05, * p<0.1.

**Table A2**
Occupation levels (EGP classification).

| Occupational rank | Rank name | Detail |
|---|---|---|
| 10 | Higher-grade professionals, administrators, and officials; managers in large industrial establishments; large proprietors | Senior professionals (e.g., doctors, lawyers, senior civil servants), top executives, and large business owners |
| 9 | Lower-grade professionals, administrators, and officials; higher-grade technicians; managers in small industrial establishments; supervisors of non-manual employees | Mid-level professionals (e.g., teachers, engineers), middle management, and supervisors of office workers |
| 8 | Routine non-manual employees (higher grade) | Clerical and administrative staff with higher responsibility (e.g., senior secretaries, office managers) |
| 7 | Routine non-manual employees (lower grade) | Basic clerical and sales employees (e.g., cashiers, receptionists) |
| 6 | Small proprietors with employees | Small business owners employing others (e.g., shop owners, restaurant owners with staff) |
| 5 | Small proprietors without employees | Self-employed individuals without employees (e.g., independent artisans, freelancers) |
| 4 | Farmers and smallholders | Small-scale agricultural workers and farm owners |
| 3 | Lower-grade technicians; supervisors of manual workers | Technicians with lower specialization (e.g., lab assistants, maintenance supervisors) |
| 2 | Skilled manual workers | Tradespeople and craftsmen (e.g., electricians, plumbers, carpenters) |
| 1 | Semi- or unskilled manual workers | Factory and industrial workers with some training (e.g., machine operators, assembly line workers); laborers and workers with no specialized skills (e.g., cleaners, construction laborers, farmhands) |

Note: We present the social class scheme suggested by Erikson, Goldthorpe and Portocarero (1979, EGP). It uses the International Standard Classification of Occupations (ISCO) codes to categorize occupations as marker of social classes. Majors at the top and bottom were divided to fit the 10 rank distribution. See: https://ilostat.ilo.org/methods/concepts-and-definitions/classification-occupation/

**Table A3**
Specification Tests.

| Dep. var: 2019 protest | | Each model adds an alternative set of variables for: | | | | | |
|---|---|---|---|---|---|---|---|
| | Basic controls | Income deciles | Perceived positions | Social gaps (income) | Social gaps (occup.) | Social gaps (composite) | Decile xposition interaction |
| | (0) | (1) | (2) | (3) | (4) | (5) | (6) |
| **(a) Linear probability models** | | | | | | | |
| Joint significativity of the set of dummies for: | | Decile dummies | PerceivedPosition dum. | Social gap dum. (income) | Social gap dum. (occup.) | Social gap dum. (composite) | Decile xposition dum. |
| p-value | | 0.58 | 0.6 | **0** | **0** | **0** | 0 |
| R2 | 0.116 | 0.119 | 0.122 | 0.131 | 0.132 | 0.132 | 0.151 |
| Adj. R2 | 0.107 | 0.107 | 0.106 | **0.114** | **0.115** | **0.115** | 0.109 |
| **(b) Logit regressions** | | | | | | | |
| Log-L. ratio test (nested models) | | (1) vs (0) | (2) vs (1) | (3) vs (1) | (4) vs (1) | (5) vs (1) | (6) vs (1), vs (2) |
| p-value | | 0.58 | 0.6 | **0** | **0** | **0** | 0.04, 0.04 |
| Socio-demographics | YES | YES | YES | YES | YES | YES | YES |
| Decile dummies | NO | YES | YES | YES | YES | YES | NO |
| # obs | 2105 | 2105 | 2105 | 2105 | 2105 | 2105 | 2105 |

Note: we estimate 2019 protest using alternative specification. Controls include socio-demographics (male, age, married, education, indigenous), unemployed, informal worker, and region. For comparability and to conduct nested model tests, we use a common sample (i.e. observations for which income, occupation and perceived status are available) for all specifications. Robust standard errors clustered at individual level and indicated in parentheses. Significance levels indicated as: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

**Table A4**
Baseline estimations and dynamics, using lagged controls.

| | Baseline | | | Dynamics | | | |
|---|---|---|---|---|---|---|---|
| Dep. var.: | 2019 Protest dummy | | | 2019 Protest dummy | | | |
| Objective status used for social gap: | Income | Occupation | Composite | Income | Income | Occupation | Composite |
| | (1) | (1′) | (1″) | (2) | (2′) | (2″) | (2‴) |
| Social gap, 2018 | 0.027** | 0.038*** | 0.052*** | | | | |
| | (0.013) | (0.010) | (0.011) | | | | |
| Social gap, 2017 | | | | 0.032* | | | |
| | | | | (0.018) | | | |
| Change in Social gap 2017–18 | | | | 0.015 | | | |
| | | | | (0.017) | | | |
| Social gap, 2016 | | | | | 0.046** | 0.028* | 0.072*** |
| | | | | | (0.018) | (0.017) | (0.019) |
| Change in Social gap, 2016–18 | | | | | 0.024 | 0.047*** | 0.061*** |
| | | | | | (0.016) | (0.016) | (0.018) |
| **Relative effects of:** | +1 s.d. in 2018 social gap | | | +1 s.d. in social gaps of both years | | | |
| in % of protest mean | 9 % | 13 % | 18 % | 11 % | 16 % | 10 % | 25 % |

(*continued on next page*)

**Table A4** (*continued*)

| | Baseline | | | Dynamics | | | |
|---|---|---|---|---|---|---|---|
| Dep. var.: | 2019 Protest dummy | | | 2019 Protest dummy | | | |
| Objective status used for social gap: | Income | Occupation | Composite | Income | Income | Occupation | Composite |
| in % of protest std. dev. | 6 % | 8 % | 12 % | 7 % | 10 % | 6 % | 16 % |
| Protest: mean | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 |
| Protest: std. dev. | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 |
| # obs | 2031 | 2031 | 2031 | 1303 | 1341 | 1149 | 1097 |
| R2 | 0.119 | 0.123 | 0.127 | 0.149 | 0.141 | 0.138 | 0.144 |
| Adj. R2 | 0.109 | 0.113 | 0.117 | 0.134 | 0.126 | 0.121 | 0.125 |

Note: all estimation control for socio-demographics (male, age, married, education, indigenous), household income, work status, and region, with time-varying controls lagged. For models 1–1″, we use a common sample (i.e. observations for which income, occupation and perceived ranks are available) for the sake of comparability. Robust standard errors clustered at individual level and indicated in parentheses. Significance levels indicated as: *** p < 0.01, ** p < 0.05, * p < 0.1.

**Table A5**
Baseline estimations and dynamics, controlling for occupational level.

| | Baseline | | | Dynamics | | | |
|---|---|---|---|---|---|---|---|
| Dep. var.: | 2019 Protest dummy | | | 2019 Protest dummy | | | |
| Objective status used for social gap: | Income | Occupation | Composite | Income | Income | Occupation | Composite |
| | (1) | (1′) | (1″) | (2) | (2′) | (2″) | (2‴) |
| Social gap, 2018 | 0.030*** | 0.012 | 0.044*** | | | | |
| | (0.011) | (0.017) | (0.012) | | | | |
| Social gap, 2017 | | | | 0.035** | | | |
| | | | | (0.017) | | | |
| Change in Social gap 2017–18 | | | | 0.023 | | | |
| | | | | (0.016) | | | |
| Social gap, 2016 | | | | | 0.044** | −0.021 | 0.058*** |
| | | | | | (0.018) | (0.026) | (0.021) |
| Change in Social gap, 2016–18 | | | | | 0.025 | −0.001 | 0.049*** |
| | | | | | (0.015) | (0.024) | (0.018) |
| **Relative effects of:** | +1 s.d. in 2018 social gap | | | +1 s.d. in social gaps of both years | | | |
| in % of protest mean | 10 % | 4 % | 15 % | 12 % | 15 % | 0 % | 20 % |
| in % of protest std. dev. | 7 % | 3 % | 10 % | 8 % | 10 % | 0 % | 13 % |
| Protest: mean | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 |
| Protest: std. dev. | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 | 0.45 |
| # obs | 2105 | 2105 | 2105 | 1225 | 1248 | 1226 | 1128 |
| R2 | 0.129 | 0.126 | 0.131 | 0.153 | 0.147 | 0.140 | 0.145 |
| Adj. R2 | 0.119 | 0.116 | 0.122 | 0.136 | 0.130 | 0.123 | 0.127 |

Note: all estimation control for socio-demographics (male, age, married, education, indigenous), household income and (continuous) occupational status, work status, and region, with time-varying controls lagged. For models 1–1″, we use a common sample (i.e. observations for which income, occupation and perceived ranks are available) for the sake of comparability. Robust standard errors clustered at individual level and indicated in parentheses. Significance levels indicated as: *** p < 0.01, ** p < 0.05, * p < 0.1.

**Table A6**
Estimations of protest on social gap and lagged perceptions, alternative models.

| | | Dep. var.: 2019 protest dummy | | | | |
|---|---|---|---|---|---|---|
| | Alternativevariables forpolitical attitude | | 2017 social gap level & 2017–18 variation | | | |
| | (1) | | (2) | (3) | (4) | (5) |
| *Objective status: income* | | *Objective status: income* | | | | |
| Social gap, 2018 | 0.032*** | Social gap, 2017 | 0.044*** | 0.041*** | 0.043*** | 0.038** |
| | (0.010) | | (0.016) | (0.016) | (0.015) | (0.015) |
| | | Change in Social gap 2017–18 | 0.033** | 0.023 | 0.027* | 0.024* |
| | | | (0.014) | (0.014) | (0.014) | (0.014) |
| Public good valuation | −0.034 | Public good valuation | | −0.027 | −0.027 | −0.025 |
| | (0.022) | | | (0.029) | (0.029) | (0.029) |
| Anger at life cost | 0.020* | Anger at life cost | | 0.068*** | 0.046*** | 0.049*** |
| | (0.011) | | | (0.012) | (0.014) | (0.013) |
| Peers protest | 0.167*** | Peers protest | | 0.159*** | 0.162*** | 0.159*** |
| | (0.017) | | | (0.020) | (0.020) | (0.020) |
| Combined unfair/inequality | 0.034*** | Combined unfair/inequality | | | | 0.033*** |
| | (0.008) | | | | | (0.010) |
| Trust in government | −0.049*** | Support democracy | | | | 0.127*** |
| | (0.010) | | | | | (0.023) |
| Favor change in Constitution | 0.050*** | Corruption issue | | | | 0.044 |
| | | | | | | (0.039) |
| # obs | 2231 | | 1386 | 1335 | 1323 | 1323 |
| R2 | 0.185 | | 0.140 | 0.178 | 0.187 | 0.208 |
| Adj. R2 | 0.179 | | 0.133 | 0.169 | 0.178 | 0.197 |

Note: estimation of 2019 protests on social gap and perception variables regarding living costs, public goods, peer effects, inequality and unfairness views and politics. Perceptions are lagged (except anger at life cost, available only for 2019). Model (1): lagged social gap is used with perception including alternative political attitude variables. Models (2)-(5): the 2017 social gap is used along the 2017–18 change in the gap. All estimations control for socio-demographics (male, age, married, education, indigenous), household income, work status and region. The "combined unfair/inequality" is the first component of a PCA on the three alternative variables: perceived unfairness regarding income differences, perceived unfairness regarding the tax system, and anger at inequalities. Robust standard errors indicated in parentheses. Significance levels indicated as: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

## Appendix B. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.worlddev.2025.107248.

## Data availability

We have shared the data and replication files in a zipped folder

## References


Acemoglu, D., Hassan, T., & Tahoun, A. (2018). The power of the street: Evidence from Egypt's Arab spring. *Review of Financial Studies, 31*(1), 1–42.

Adler, N. E., Boyce, T., Chesney, M. A., Cohen, S., Folkman, S., Kahn, R. L., & Syme, S. L. (1994). Socioeconomic status and health: The challenge of the gradient. *American Psychologist, 49*(1), 15–24.

Akay, A., & Karabulut, G. (2020). Personality and positionality: Evidence from survey experiments with alternative goods. *Eurasian Business Review, 10*, 123–156.

Albacete, N., Fessler, P., & Lindner, P. (2022). The Wealth distribution and Redistributive Preferences: Evidence from a Randomized Survey Experiment. *Working Papers, 239*.

Algan, Y., Guriev, S., Papaioannou, E., & Passari, E. (2017). The European trust crisis and the rise of populism. *Brookings Papers on Economic Activity*, 309–382.

Algan, Y., Beasley, E., Cohen, D., & Foucault, M. (2019). *The Origins of Populism (in French)*. Editions Seuil.

Álvarez-López, V., López-Morales, E., & Link, F. (2023). Territorial stigma, urban inequality, and the social uprising in Santiago de Chile. *Urban Studies, 60*(14), 2732–2750.

Autor, D., Dorn, D., Hanson, G., & Majlesi, K. (2020). Importing political polarization? The electoral consequences of rising trade exposure. *American Economic Review, 110*(10), 3139–3183.

Baccini, L., & Sattler, T. (2024). Austerity, economic vulnerability, and populism. *American Journal of Political Science, 00*, 1–17.

Bago d'Uva, T., Van Doorslaer, E., Lindeboom, M., & O'Donnell, O. (2008). Does reporting heterogeneity bias the measurement of health disparities? *Health Economics, 17*(3), 351–375.

Bautista, M. A., González, F., & Prem, M. (2021). The geography of repression and opposition to autocracy. *American Journal of Political Science, 65*(4), 898–913.

Beegle, K., Himelein, K., & Ravallion, M. (2012). Frame-of-reference bias in subjective welfare regressions. *Journal of Economic Behavior and Organization*.

Berman, N., & Couttenier, M. (2015). External shocks, internal shots: The geography of civil conflicts. *Review of Economics and Statistics, 97*(4), 758–776.

Bertrand, M., & Mullainathan, S. (2001). Do people mean what they say? Implications for subjective survey data. *American Economic Review, 91*(2), 67–72.

Bossert, W., Clark, A. E., D'Ambrosio, C., & Lepinteur, A. (2023). Economic insecurity and political preferences. *Oxford Economic Papers, 75*(3), 802–825.

Bourguignon, F. (2006). From income to endowments: The difficult task of expanding the income poverty paradigm. In D. B. Grusky, & R. Kanbur (Eds.), *Poverty and Inequality* (pp. 76–102). Stanford University Press.

Bourret-Soto, M. (2024). Legacies of violence: Impressionable year hypothesis and political attitudes in Chile. *SSRN*. https://doi.org/10.2139/ssrn.4804803

Brady, H. E., Verba, S., & Schlozman, K. L. (1995). Beyond SES: A resource model of political participation. *American Political Science Review, 89*(2), 271–294.

Bublitz, E. (2022). Misperceptions of income distributions: Cross-country evidence from a randomized survey experiment. *Socio-Economic Review, 20*(2), 435–462.

Budría, S., & Ferrer-i-Carbonell, A. (2019). Life satisfaction, income comparisons and individual traits. *ERN: Other Microeconomics: Intertemporal Consumer Choice and Savings*.

Bussolo, M., Ferrer-i-Carbonell, A., Giolbas, A., & Torre, I. (2021). I perceive therefore I demand: The formation of inequality perceptions and demand for redistribution. *Review of Income and Wealth, 67*, 835–871.

Cervellati, M., Esposito, E., & Sunde, U. (2022). Epidemic shocks and civil violence: Evidence from malaria outbreaks in Africa. *Review of Economics and Statistics, 104*(4), 780–796.

Chambers, J. R., Swan, L. K., & Heesacker, M. (2013). Better off than we know: Distorted perceptions of incomes and income inequality in America. *Psychological Science*.

Clark, A. E., & Senik, C. (2010). Who compares to whom? The anatomy of income comparisons in Europe. *Economic Journal, 120*, 573–594.

Correa, S., Nandong, G., & Shadmehr, M. (2025). Grievance shocks and coordination in protest. *American Journal of Political Science, 69*, 341–354.

Cox, L., González, R., & Le Foulon, C. (2024). The 2019 chilean social upheaval: A descriptive approach. *Journal of Politics in Latin America, 16*(1), 68–89.

Crosby, F. (1976). A model of egoistic relative deprivation. *Psychological Review, 83*, 85–113.

Cruces, G., Perez-Truglia, R., & Tetaz, M. (2013). Biased perceptions of income distribution and preferences for redistribution: Evidence from a survey experiment. *Journal of Public Economics, 98*, 100–112.

Dalton, R., Van Sickle, A., & Weldon, S. (2010). The individual–institutional nexus of protest behaviour. *British Journal of Political Science, 40*(1), 51–73.

Dubrow, J. K., Slomczynski, K. M., & Tomescu-Dubrow, I. (2008). Effects of democracy and inequality on soft political protest in Europe: Exploring the European social survey data. *International Journal of Sociology, 38*(3), 36–51.

Erikson, R. (2015). Income inequality and policy responsiveness. *Annual Review of Political Science, 18*, 11–29.

Erikson, R., Goldthorpe, J. H., & Portocarero, L. (1979). Intergenerational class mobility in three Western European societies: England, France, and Sweden. *British Journal of Sociology, 30*(4), 415–441.

Fehr, D., Mollerstrom, J., & Perez-Truglia, R. (2022). Your place in the world: Relative income and global inequality. *American Economic Journal: Economic Policy, 14*(4), 232–268.

Ferreira, F., & Schoch, M. (2020). *Inequality and social unrest inLatin America: the Tocqueville paradox revisited. World Bank Blogs. 2020 Feb 24 [accessed February 2025]*. https://blogs.worldbank.org/developmenttalk/inequality-and-social-unrest-latin-americatocqueville-paradox-revisited25.

Fetzer, T. (2019). Did austerity cause Brexit? *American Economic Review, 109*, 3849–3886.

Fisman, R., Kuziemko, I., & Vannutelli, S. (2020). Distributional preferences in larger groups: Keeping up with the Joneses and keeping track of the tails. *Journal of the European Economic Association, 19*, 1407–1438.

Fong, C. (2001). Social preferences, self-interest, and the demand for redistribution. *Journal of Public Economics, 82*(2), 225–246.

Fransman, T., & von Fintel, M. (2024). Relative standing and political participation. *Social Indicators Research, 174*(1), 281–311. https://doi.org/10.1007/s11205-024-03383-y

Gimpelson, V., & Treisman, D. (2018). Misperceiving inequality. *Economics and Politics, 30*, 27–54.

Goldthorpe, J. H. (2012). Back to class and status: Or why a sociological view of social inequality should be reasserted. *Revista Espanola de Investigaciones Sociologicas, 137*, 201–216.

Grant, P. R., & Brown, R. (1995). From ethnocentrism to collective protest: Responses to relative deprivation and threats to social identity. *Social Psychology Quarterly, 58*(3), 195–211.

Grasso, M. T., & Giugni, M. (2016). Protest participation and economic crisis: The conditioning role of political opportunities. *European Journal of Political Research, 55*(4), 663–680.

Grasso, M. T., Yoxon, B., Karampampas, S., & Temple, L. (2019). Relative deprivation and inequalities in social and political activism. *Acta Politica, 54*(3), 398–429.

Guiso, L., Herrera, H., Morelli, M., & Sonno, T. (2024). Economic insecurity and the demand for populism in Europe. *Economica, 91*. https://doi.org/10.1111/ecca.12513

Harari, M., & La Ferrara, E. (2018). Conflict, climate, and cells: A disaggregated analysis. *The Review of Economics and Statistics, 100*(4), 594–608.

Hauser, O. P., & Norton, M. I. (2017). (Mis) Perceptions of inequality. *Current Opinion in Psychology, 18*, 21–25.

Hoy, C., & Mager, F. (2021). Why are relatively poor people not more supportive of redistribution? Evidence from a randomized survey experiment across ten countries. *American Economic Journal: Economic Policy, 13*(4), 299–328.

Hvidberg, K. B., Kreiner, C. T., & Stantcheva, S. (2023). Social positions and fairness views on inequality. *Review of Economic Studies, 90*(6), 3083–3118.

Joignant, A., Garretón, M., Somma, N., & Campos, T. (2020). Informe Annual del Observatorio de Conflictos 2020. *COES Centro de Estudios de Conflicto y Cohesión Social*.

Justino, P., & Martorano, B. (2016). Inequality, distributive beliefs, and protests: A recent story from Latin America. *Working Paper, 06/2016*.

Justino, P., & Martorano, B. (2019). Redistributive preferences and protests in Latin America. *Journal of Conflict Resolution, 63*(9), 2128–2154.

Justino, P., Arjona, A., Cárdenas, J. C., Ibáñez, A. M., & Vallejo, J. A. (2019). On the political and social consequences of economic inequality: Civic engagement in Colombia. *WIDER Working Paper, 2019/76*.

Justino, P., Martorano, B., & Metzger, L. (2023). Can preferences for redistribution explain the impact of austerity on political participation? Evidence from the UK. *Oxford Bulletin of Economics and Statistics, 85*(5), 1225–1250.

Karadja, M., Mollerstrom, J., & Seim, D. (2017). Richer (and Holier) than Thou? The effect of relative income improvements on demand for redistribution. *The Review of Economics and Statistics, 99*(2), 201–212.
Kraus, M. W., Tan, J. J., & Tannenbaum, M. B. (2013). The social ladder: A rank-based perspective on social class. *Psychological Inquiry, 24*(2), 81–96.
Kraus, M. W., Anderson, C., & Callaghan, B. (2015). The inequality of politics: Social class rank and political participation. *Journal of Personality and Social Psychology*.
Kuziemko, I., Buell, R. W., Reich, T., & Norton, M. I. (2014). Last-place aversion: Evidence and redistributive implications. *Quarterly Journal of Economics, 129*, 105–149.
Lijphart, A. (1997). Unequal participation: Democracy's unresolved dilemma. *American Political Science Review, 91*(1), 1–14.
Luca, Wei, & Lee. (2025). Local wealth inequality fuels political protests: New big-data evidence from the Global South. *LSE mimeo*.
Madestam, A., Shoag, D., Veuger, S., & Yanagizawa-Drott, D. (2013). Do political protests matter? Evidence from the Tea Party Movement. *Quarterly Journal of Economics, 128*(4), 1633–1685.
Nollert, M. (1995). Neocorporatism and Political protest in the western democracies: A Cross-national analysis. In J. C. Jenkins, & B. Klandermans (Eds.), *The politics of social protest: Comparative perspectives on states and social movements* (pp. 68–81). London, UK: University College of London Press.
Norton, M., & Ariely, D. (2011). Building a better America—one wealth quintile at a time. *Perspectives on Psychological Science, 6*, 9–12.
Osberg, L., & Smeeding, T. (2006). Fair inequality? Attitudes toward pay differentials: The United States in comparative perspective. *American Sociological Review, 71*(3), 450–473.
Palacios-Valladares, I. (2017). Internal movement transformation and the diffusion of student protest in Chile. *Journal of Latin American Studies, 49*(3), 579–607.
Passarelli, F., & Tabellini, G. (2017). Emotions and political unrest. *Journal of Political Economy, 125*(3), 903–946.
Power, S. A. (2018). The deprivation-protest paradox: How the perception of unfair economic inequality leads to civic unrest. *Current Anthropology, 59*(6), 765–789.
Ravallion, M. (2015). Poor, or just feeling poor? On using subjective data in measuring poverty. In A. E. Clark, & C. Senik (Eds.), *Happiness and Economic Growth: Lessons from Developing Countries (Studies of Policy Reform). Oxford*.
Ravallion, M., & Lokshin, M. (2010). Who cares about relative deprivation? *Journal of Economic Behavior and Organization, 73*(2).
Requena, M., & Figueroa, O. (2019). Inequality in social capital in Chile: Assessing the importance of network size and contacts' occupational prestige on status attainment. *Social Networks, 60*, 1–15.
Reyes, G., & Gasparini, L. (2022). Are fairness perceptions shaped by income inequality? evidence from Latin America. *Journal of Economic Inequality, 20*, 1–21.
Rhodes-Purdy, M., & Rosenblatt, F. (2021). Raising the Red Flag: Democratic elitism and the protests in Chile. *Perspectives on Politics*, 1–13.
Schleef, J., Castellanos-Alvarenga, L. M., Olivera, M. P., & Ortiz, M. S. (2024). Disentangling between-person and within-person associations of physical symptoms of depression with self-perceived health and life satisfaction: A longitudinal study in Chilean adults. *Journal of Health Psychology*.
Schlozman, K. L., Verba, S., & Brady, H. E. (2012). *The unheavenly chorus: Unequal political voice and the broken promise of American democracy*. Princeton University Press.
Solt, F. (2008). Economic inequality and democratic political engagement. *American Journal of Political Science, 52*(1), 48–60.
Solt, F. (2015). Economic inequality and nonviolent protest. *Social Science Quarterly, 96*.
Tan, J. J. X., Kraus, M. W., Carpenter, N. C., & Adler, N. E. (2020). The association between objective and subjective socioeconomic status and subjective well-being: A meta-analytic review. *Psychological Bulletin, 146*(11), 970–1020.
UNDP (2017). "Desiguales: Orígenes, cambios y desafíos de la brecha social en Chile." https://www.sciencespo.fr/ceri/en/content/groundswell-protest-latin-america.
Verba, S., Schlozman, K. L., & Brady, H. E. (1995). *Voice and Equality: Civic Voluntarism in American Politics* (Vol. 4). Cambridge, MA: Harvard University Press.