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Article

Who turns out to vote? a fresh look into an old question

Giorgio Bellettini[1], Carlotta Berti Ceroni[1], Daniela Iorio[1], Chiara Monfardini[1], Giovanni Prarolo[2,*]

[1]Università di Bologna, Bologna, Italy
[2]Università di Bologna, CEPR and LdA, Bologna, Italy

*Corresponding author: E-mail: giovanni.prarolo@unibo.it.

ABSTRACT

Exploiting an individual-level administrative dataset in a large Italian municipality, we investigate the impact of income shocks and exposure to ethnic diversity on electoral turnout. A large positive income shock increases turnout only among the poor, while both adverse income and diversity shocks tend to dampen turnout. Estimates are larger at the lower tail of the income distribution, where a large negative income shock reduces turnout by 7.9%, and among poor elderly people, whose turnout drops by 13.5%. The entry of a populist party possibly induces a relative increase (decrease) in turnout among the poor (rich) who suffered an income loss. (*JEL* D72, D31)

1. INTRODUCTION

Understanding the determinants of voter turnout, both at the individual and contextual level, has been a long-standing interest of politicians, scholars, and news commentators alike. Indeed, active citizens' participation is essential to the well-functioning of a representative democracy, and changes in the composition of the electorate may have major consequences for policymaking (see e.g., Fowler 2013; Madestam et al. 2013; Vernby 2013).

While studies about the demographic and socioeconomic profile of the electorate proliferated in the past few decades, what is largely overlooked is a clear insight into how eligible voters react to socio-economic shocks *directly* hitting them and the consequences of said shocks on *actual* voter engagement. This is mainly due to a lack of detailed individual-level data about who casts a ballot in an election, coupled with fine-grained information on individual circumstances and their evolution over time.

In this work, we exploit a unique administrative dataset that matches individual register and tax records from 2002 to 2013 with voter rolls covering four rounds of elections held in Bologna, a municipality in northern Italy, to investigate the impact of two shocks on electoral participation: (a) economic shocks, bringing about a sizable variation (positive or

negative) in household income and (b) close exposure to ethnic diverse groups, due to the arrival of immigrants from distant ethnic background in one's dwelling (henceforth, diversity shocks).

The global financial crisis of 2007–2008 generated deep economic shocks in Italy and across Europe, undermining trust in mainstream parties. At the same time, intensified migration flows reshaped local communities, forcing societies to confront questions of identity, security, and cultural integration. Together, these forces represent structural shifts in the European political landscape: economic insecurity can reduce turnout by fostering disillusionment and political disengagement, while salient issues such as immigration may mobilize new voters and strengthen support for populist or anti-establishment movements. Studying these two phenomena side by side allows us to assess how voters respond to parallel economic and demographic pressures that are central to understanding electoral behavior in the 21st century.

There is no reason to expect that all voters react in the same way to a shock: as we follow the universe of eligible voters over time, we can precisely uncover striking differences in the shock-turnout gradient over the income distribution, age and other attributes of the electorate, and in conjunction with changes in the political arena [e.g., the rise of a populist party, such as the Five Star Movement (FSM)].[1]

As far as income is concerned, while the widespread agreement is that voter turnout is higher among the rich than the poor, it is difficult to tease out whether it is income itself responsible for this difference or other correlated socio-economic factors, such as education, interest in politics, civic engagement, and turnout at elections. To address this issue, we exploit accurately measured individual income fluctuations in the year preceding an election to isolate the income effect.[2] Evidence based on income shocks along the entire income distribution, and over time, is scant. For instance, Schafer et al. (2022) focus only on rather extreme and coarse shocks—namely, whether households stop earning any taxable income between two elections—an event that occurs mainly at the bottom of the income distribution. Instead, a distinctive feature of our work is that we can exploit information on the income profiles for 15 years, which allows us to quantify any potential short-term income shocks, both positive and negative, for the really poor as well as the extremely wealthy, and for anyone in between. Hence, we consider income shocks occurring before an election for any eligible voters relative to those experienced by others in the same income bracket, which we take as reference to gauge whether a shock is sizeable. These shocks are then considered as candidate drivers of actual individual turnout, together with income level and other socio-demographic characteristics.

By considering the universe of eligible voters in Bologna, we can investigate whether voters from the bottom quarter of the initial income distribution are more or less sensitive to negative (or positive) income shocks than their rich counterparts. We uncover a positive income gradient in voter turnout, and this relationship is highly heterogeneous across income classes. Negative income shocks tend to alienate all voters, but this effect fades away as income level increases.[3] Furthermore, large positive shocks increase turnout only among the

[1] Elections held in Bologna are a suitable venue to examine whether income and diversity shocks play a role in a context historically characterized by profound civic engagement, as portrayed by Putnam et al. (1994), and low level of segregation (ethnic groups are uniformly spread all over the city).

[2] Directly observing who casts a ballot, rather than voting intentions, addresses the usual concerns about measurement error in survey data.

[3] Our findings reveal a novel aspect of political inequality, showing that individual negative income shocks disproportionately impact the political engagement of economically vulnerable groups, further deepening existing disparities in political representation. For a comprehensive review of the literature on political inequality (see Cagé and Piketty 2023; Cagé 2024).

poor, and individuals placed at the top of the income distribution are not particularly sensitive to income shocks: if anything, when facing a large positive shock, the probability of turnout decreases by one p.p. If we compare the response of these two groups, we see that eligible voters from the bottom quintile of the initial income distribution increase their participation by 7 p.p. compared to the top quintile, who experienced a shock of the same relative size. The size of the effect is large, and it reduces by one-third the turnout gap between these two groups.

These findings are in line with the theoretical predictions of resource models of political participation (Rosenstone 1982; Brady et al. 1995). As a threshold level of income is necessary for participation in politics, we might expect not only that income matters for turnout, but also that short-term economic adversity does: a sizable income loss just before elections may make citizens less likely to turn out to vote, especially if they are poor to begin with. Indeed, people facing economic strains may have little time to devote to politics and lose interest in it.[4] Hence, positive income shocks should only mobilize the poor.

Our findings contribute to a growing and very recent body of literature that seeks to isolate the effect of income on voter turnout and shed light on how voters respond to direct individual socioeconomic shocks and how these experiences shape their political participation. Akee et al. (2020), Markovich and White (2022), Loeffler (2023), and Hirvonen et al. (2024) leverage exogenous income variation induced by policy interventions, such as unearned income programs and minimum wage adjustments, which primarily target lower-income groups. As a result, they effectively capture the impact of positive income shocks on turnout, but only among economically disadvantaged individuals. Closer to our contribution is Geys and Sorensen (2025), who, using data from the Norwegian population registry, find modest positive effects of exogenous lottery wins on participation. They also examine how lottery-induced income gains affect turnout across income deciles, but unlike us do not find a clear pattern along the income distribution. Our results complement these studies by providing a broader perspective that considers both positive and negative income shocks along the entire income distribution and different electoral rounds, showing that economic shocks do not affect all voters uniformly.

While we cannot rely on external policy shocks occurring along the entire income distribution, the longitudinal variation we use comes from extremely granular micro-level administrative data, which allows for a detailed and precise estimation of the relationship between income fluctuations and voter turnout. Overall, we corroborate the conclusion of a positive income gradient in political participation reached by past studies using more aggregate data, which could not provide insights into individual behavior without the risk of ecological fallacy due to the nature of such data. For a thorough review of these studies, see Smets and Van Ham (2013).[5]

Past works have also highlighted the importance of local contextual factors in determining turnout. Among these, following the surge in immigration flows to Western countries, local ethnic diversity has received increasing attention. A strand of studies (Bellettini et al. 2016, 2020; Dinesen and Sønderskov 2016) lends support to a prominent view in political science (Alesina and La Ferrara 2000; Putnam 2007) that ethnic diversity in residential contexts

[4] This interpretation of our results is consistent with the finding of Schaub (2021), who finds that paycheck delays caused by the bank working days schedule lead to short-term financial difficulties, inducing stress and alienation. Consequently, this decreases turnout intentions.

[5] A major obstacle faced by past works was the lack of detailed individual-level data linking electoral participation to personal financial circumstances. Without precise, longitudinal data that tracks who votes and how their economic situation changes over time, it is difficult to study whether and how turnout is directly influenced by income shocks or financial instability. Another limitation of traditional studies is that they rely on aggregate statistics (e.g., at the precinct level) or survey-based self-reports, which can be prone to biases.

may reduce social cohesion, trust, and pro-social behavior, including political participation and turnout. Other works reach the opposite conclusion, that is, the absence of a significant connection between diversity and turnout (Bhatti et al. 2017). All the aforementioned contributions rely on somewhat large contexts (e.g., census tract, precinct, or some arbitrarily defined spatial unit) where, again, it is difficult to tease out the effect of local ethnic diversity from other characteristics of the communities. Thus, it is crucial to measure diversity at a sufficiently low level (such as at the building level) to ensure that voters' contact with ethnic others is unavoidable.

To this end, in this study, we exploit fine-grained geo-localized and longitudinal individual data to build a novel measure of personal exposure based on a change in the ethnicity of the next-door neighbor. In particular, we identify all buildings whose formerly only Italian residents experienced, in a pre-electoral year, a personal contact with ethnic others following the arrival of a household with at least one member of African or Asian citizenship (alternatively, with at least one non-OECD member), and we compare their decision to vote with that of those living in a residential unit of only Italians. We show that buildings are rather similar within a precinct and that the arrival of a foreign household is not correlated with the characteristics of the Italian households residing there. On these premises, we leverage plausibly exogenous variation in personal exposure to ethnic diversity to investigate its association with the electoral participation of natives.

Exposure to ethnic others may have different effects across the income distribution, as less affluent electors may disproportionately fear the competition of immigrants in the labor market and in access to basic public services, and/or feel that their interests are not well represented in the political spectrum. We show that the diversity shock discourages electoral participation. The magnitude of the effect decreases as income increases and is statistically significant only for the first three quintiles of the income distribution. For the richest group, the estimate turns positive, albeit insignificant. After exposure, the difference in the probabilities of casting a ballot for natives initially placed in the lowest and highest quintiles is about 3 p.p., which further increases the turnout gap between these two groups by about 15%.

Left-wing parties, which traditionally represent low-income voters' interests on redistributive issues, typically maintain a pro-immigrant stance that may demobilize the poor (Barone et al. 2016; Bellettini et al. 2020) or induce them to switch from left to right-wing parties. As discussed in the next Section, Bologna is traditionally a left-wing stronghold, which might help explain why dissatisfied left-wing voters choose to abstain rather than vote for the right.

While the effects of the income and diversity shocks largely operate independently, as we later show in Section A7, considering them jointly highlights the dual economic and demographic pressures shaping electoral behavior in the 21st century.

Finally, we exploit the fact that our data span multiple elections taking place before and after two major economic crises (the financial crisis of 2007–2008 and the European debt crisis of 2011) and before and after the entry of the FSM in the Italian political arena to examine the electoral response to the aforementioned shocks in different contexts.[6] Negative income shocks, experienced or feared because of competition in the labor market, especially during or after major economic crises, may fuel a sense of insecurity among voters and foster abstention, as a form of political protest, or support for populist (Guiso et al. 2024) or anti-immigration parties (Andersson and Dehdari 2021). We show that before the entry of the FSM, following a sizable adverse income shock, the propensity to alienation of the poorest is

[6] The FSM is a populist party founded by Grillo, a former comedian, in October 2009. It often criticized austerity policies and advocated the introduction of a guaranteed minimum income scheme to tackle economic insecurity faced by low-income households.

accentuated with the crisis (about 7.2 p.p. in 2008). This propensity markedly diminished after the FSM entry in the political arena (about 2.4 p.p. in 2013). The opposite trend is observed among the rich: the propensity to alienation is more marked after the change in the political arena (about 1.9 p.p. in 2008 vs. 3.2 p.p in 2013). This finding seems to accord with a familiar armchair observation that the entry of a populist party after the breakout of crises might contribute to mobilizing poor voters hit by adverse income shocks. Instead, the demobilization of the rich may reflect their desire to punish traditional parties.

The remainder of this paper is organized as follows. Section 2 gives an overview of the data, Section 3 sets up the empirical strategy, while the main results are presented in Section 4. Section 5 provides alternative specifications for the main analysis, while Section 6 exploits data heterogeneity. Section 7 runs an analysis based on actual vote shares to corroborate some conjectures derived from the main results, and Section 8 concludes.

2 DATA AND INSTITUTIONAL BACKGROUND

The dataset is entirely retrieved from official administrative records and covers the universe of Bologna citizens. The dataset matches individual register and tax record data from 2002 to 2013 with individual turnout behavior of eligible voters across four consecutive elections (municipal elections were held in 2004 and 2009, national elections in 2008 and 2013), which leaves us with a sample of about 1.08 million observations. The official records contain information about the place and year of birth, gender, marital status, country of origin, taxable income, and domicile of each citizen of Bologna and their household members.

In the time period considered in this study, turnout in Bologna has always been high, above 80%, both in local and general elections (see Supplementary Appendix Table A1), consistent with Bologna's tradition of strong civic engagement. Further, the composition of the electorate (based on observable characteristics such as age, gender, and income) has been remarkably stable across elections (see Supplementary Appendix Table A4).[7]

Crucial to our empirical strategy for the identification of the effect of economic and diversity shocks on turnout are two specific features of the data. The first distinctive feature is the income history obtained from the administrative records of declared taxable income. The availability of this information, combined with individual voting participation, allows us to study in depth individual income as a turnout determinant by looking not only at income levels (as usually done in the economic and political science literature) but also at the role played by income fluctuations, either positive or negative, over time. From individual records, we can compute income fluctuations also at the household level and use the adjusted household income definition of the OECD to account for household composition.

We first compute a year-on-year variation in household income levels to construct indicators of positive and negative income shocks, and of shocks of different sizes, pertaining to different deciles of the income distribution. Specifically, let s_{jt} be the absolute value of the change in income between two consecutive years ($t-1$ and t) for a household j belonging to the *d-th* decile of the income distribution in year $t-1$, and z_d the standard deviation of the (absolute value of) the income shocks occurring in the *d-th* decile in year $t-1$. We then compare the magnitude of a single shock, s_{jt}, with its reference point, z_d, to construct a set of

[7] Table reports average turnout for the entire sample (and election types—administrative versus general elections—in brackets) across income quintiles, age, and gender. Notably, within each group, the average characteristics of voters show no significant differences between local and general elections. Hence, the composition of voters is nearly identical across the two contexts. Further, individuals who participate in national elections are also more likely to vote in local elections: the correlation is 0.87. Similarly, in a regression setup including the baseline controls used in the main analysis, we show that voters who participate in national elections are significantly more likely to also vote in municipal elections (estimated coefficient of 0.92), supporting our treatment of both election types as comparable in behavior.

indicators of shocks of different signs and sizes. Specifically, we consider the absolute value of the size of a shock as (i) large, when it exceeds z_d, both for negative and positive shocks (henceforth, L− and L+); (ii) moderate, when it belongs to the interval $[0.5z_d, z_d]$, again both negative and positive (henceforth, M− and M+); and (iii) negligible, when the magnitude is of a small entity, that is, smaller than one half of z_d, and denoted by S_0.

Supplementary Appendix Table A2 reveals a significant share of households being hit by an income shock across all income quintiles, but to a different degree: 24% of the households at the bottom of the income distribution experience an income change in 2 consecutive years. This fraction steadily increases with income, and it almost doubles in the top income quintile. Furthermore, the nature of a shock greatly changes across quintiles: the likelihood of a large negative shock is monotonically increasing across income quintiles, from close to zero in the first quintile to 16% in the fifth quintile. The reverse is true when we consider a large positive income shock (15% in the first quintile and 8.5% in the fifth quintile). A similar pattern is observed for moderate positive shocks.

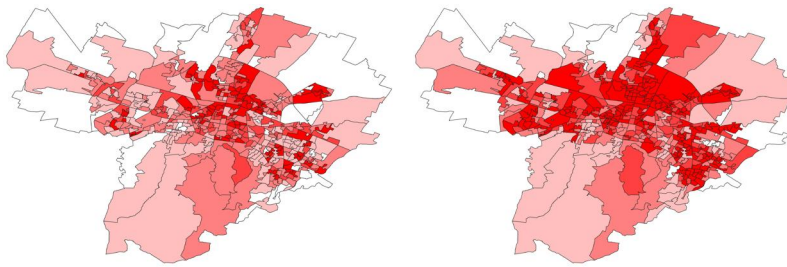
The absence of large negative shocks at the very bottom of the income distribution is due to left-truncation, as all individuals in the first decile (a most in the second one) earn an income below the no-tax area threshold—ranging from 4186 euros in 2002 to 6518 euros in 2014. By construction, this prevents them from experiencing a large negative shock. This is also why, besides ensuring clarity in the presentation of the results, we report them by quintiles rather than deciles.

Equipped with this rich variation in income shocks across individuals and over time, we can assess the differential impact of income fluctuations for individuals who share similar income levels but have recently experienced different income shocks. Our findings will contribute to shedding light on the long-standing question of whether and how income shocks may affect political participation along the entire income distribution.[8]

The second distinctive feature of the dataset is that we can exploit longitudinal information about all households living in each building in Bologna to measure the exposure of eligible voters to ethnic diversity over time. Figure 1 displays the fraction of ethnically diverse buildings in the first and last electoral year for each precinct in our sample, where a building is considered ethnically diverse if it hosts at least one household with one or more members of Asian or African origin.

Figure 1 documents a striking change in the ethnic connotation of the city over a decade. By 2013, nearly all precincts had at least 10% of buildings hosting at least one ethnically diverse household, with this share exceeding 25% in densely populated areas, such as the city center. These figures indicate that ethnically diverse households are present throughout the city rather than being concentrated in specific neighborhoods. This is further supported by the distribution of the share of ethnically diverse households across precincts in each electoral round, as shown in Supplementary Appendix Figure A1. If high segregation were present, we would expect a bimodal distribution, with a cluster of precincts having very little exposure to migrants and another with high exposure. Instead, what we observe is a

[8] A few works, which focus only on the very poor, use administrative data to provide causal evidence that interventions increasing income have a positive effect on turnout. See, for example, interventions such as the adoption of a basic income scheme in Brazil (Araujo, 2021), targeted programs in Mexico (De La 2013), and an increase in minimum wage in New York City (Markovich and White 2022). Akee et al. (2018) show that an unconditional cash transfers increased children's voting propensity in adulthood among those raised in poorer families in rural western North Carolina, while parents' turnout was unaffected. In a comparative study using self-reported income and voting intentions, Jungkunz and Marx (2022) conclude that there are few significant short-term effects of income changes on political involvement.



(a) Year 2004 (b) Year 2013

Figure 1. Share of buildings with some ethnically diverse households.
Note: Share of buildings with at least one household with one or more members of Asian or African origin, by precinct, in 2004 (a) and 2013 (b). The five shadings, from lighter to darker, correspond to 0%–6%, 6%–12%, 12%–18%, 18%–24%, and above 24%.
Source: calculations based on proprietery data.

distribution that resembles a normal, with the mean gradually increasing over time, without a sizeable increase in variance.

Notably, exposure to ethnic diversity is not a prerogative of the poor. In fact, an important fraction of Italian households lives in ethnically diverse buildings, spanning from 28% in the bottom income quintile to 21% at the top of the income distribution—see the Supplementary Appendix Table A3. In ethnically diverse buildings, Italian households cohabit with an average of 14% of African and Asian households, and this is common to all income groups. In sum, a large number of individuals, spread across all income groups and precincts, is exposed to ethnic diversity, and increasingly so over time.

Based on these considerations, the city of Bologna provides an interesting setting to study whether personal exposure to ethnic diversity plays a role even in a context historically characterized by strong political engagement and low-ethnic segregation. To this end, rather than considering the usual stock variables based on shares of immigrants or transformations of the latter, we propose a novel micro-level measure of eligible voters' exposure to ethnic diversity. In particular, we exploit variation across voters on the arrival of an ethnically diverse household in an Italian-only building, an event which occurs in roughly 3% of our individual–year observations in our dataset.

To the best of our knowledge, this is the first study that exploits variation in the exposure to ethnic diversity across buildings within a precinct. The number of precincts is 437, and the average number of buildings per precinct is about 73. A precinct covers rather narrow geographic areas and, while households' characteristics may vary considerably across precincts (e.g., average household income ranges from twelve to sixty thousand euros across precincts, see the Supplementary Appendix Table A1), they are rather similar within a precinct.

To enhance the credibility of our identification strategy, we show that, within a precinct, the likelihood of the arrival of a household of Asian or African origin (henceforth, ethnic others) in a building tenanted by Italian households is not correlated with the average observable characteristics of the latter. In Section A7, Supplementary Appendix Table A8 presents the estimates of the association between the probability of an "ethnic other family" joining a building and the share of individuals aged 65 years and older living in a building, households' average income, share of females, and average households' size, while controlling

for neighborhood fixed effects in Column 1 and precinct fixed effects in Column 2. Notably, the estimated coefficient of the average household income halves in size between the first and second column, and vanishes in Column 3 where we also control for the fact that a vacated apartment by an Italian family becomes available to a potential Italian or "ethnic other" family (labeled "household turnover"). Indeed, we exploit this variation when estimating the effect of diversity shocks on turnout. Finally, in Column 3, not only is the association of the arrival of an "ethnic other family" with average income in the building close to zero, but also with all the other building characteristics, suggesting that the likelihood of immigrant families finding accommodation in a building is not significantly influenced by the building characteristics. Hence, this evidence suggests that exposure to ethnic diversity is plausibly exogenous across buildings within a precinct. To further corroborate this conjecture, we also provide evidence that appears to support that there are no detectable pre-trends, that is, treated and control units are not ex-ante different in turning out to vote in Appendix A7.

Note that our analysis is based solely on registered immigrants, as we lack data on irregular ones. While we might expect that the inclusion of illegal immigrants would increase the observed rate of arrival of an ethnic other family in buildings occupied by Italian families, we believe that this would not add significant insights to our analysis for two main reasons. First, illegal immigrants are less likely to reside in buildings predominantly occupied by Italian families. They often live in marginalized settings, such as informal settlements or overcrowded accommodations, which limit their direct contact with local residents. This reduced interaction could mitigate the potential impact of their presence on Italian voters' attitudes. Second, although precise data on the ratio of illegal to legal immigrants are difficult to obtain due to the clandestine nature of illegal migration, available estimates indicate that this ratio is rather small. In particular, according to ISMU Foundation, at the national level, the proportion of irregular immigrants among foreign residents was relatively low during our study period—remaining under 10% since 2007 (ISMU 2023).[9] Finally, it is worth mentioning that Italian law requires landlords to report rental agreements to the local authorities (Agenzia delle Entrate) and, in some cases, to the local police. This report typically includes information about the tenant's identity, including their legal residency status. Renting to individuals without legal documentation may expose landlords to fines or legal actions, as it could be interpreted as facilitating unlawful presence in the country.

Since we are interested in studying the effect of a genuine exposure to ethnic diversity on turnout, we consider only eligible voters who did not change their domicile before an election in order to avoid any spurious correlation due to the choice of relocating. This leaves us with more than one million individual observations. Notably, though, we do not find suggestive evidence of endogenous moving out following a diversity shock. In fact, the results presented in Supplementary Appendix Table A6 show no significant association between the decision to relocate and the arrival of an ethnic other family, across all specifications.

Finally, we use information about all Bologna citizens to construct contextual variables that might be relevant in a turnout analysis, such as population density, average income, income inequality, share of females, share of children, and share of individuals over 60 in a precinct. A description of these variables is available in the Appendix Section A1.

[9] While data on the presence of irregular migrants at the city level are unavailable, regional estimates from the Statistics Department of Emilia Romagna (StatsDept, 2010) indicate that by 2008 over 91% of regular immigrants in Emilia-Romagna were registered as foreign residents in local registry office records. Assuming that the distribution of irregular immigrants or unregistered regular immigrants in Bologna mimics the national and regional averages, our data would cover approximately 80% of the foreign population in our period. This proportion may be even higher for non-European immigrants, who face greater migration barriers and are less likely to enter the country undetected.

2.1 Political background

Bologna has a longstanding association with left-wing politics, rooted in its post-World War II history as a stronghold of the Italian Communist Party (PCI). After the PCI's dissolution in 1991, its successors, namely the Democratic Party (Partito Democratico, PD) and other center-left coalitions, continued to dominate the city's political landscape. Bologna's political scene reflected its legacy as a bastion of progressive politics, with the Democratic Party and its predecessors maintaining control of the mayoralty and city council for most of this period.[10] However, during the late 2000s and early 2010s, the populist FSM began gaining support in Bologna, capitalizing on rising discontent with traditional parties. Although the FSM remained a minority force locally, its growing appeal mirrored national trends of political fragmentation and anti-establishment sentiment. After entering Bologna's political arena in 2011, the FSM achieved its first major national breakthrough in 2013. In Bologna, the party performed well in general elections, benefiting from voter dissatisfaction with both center-left and center-right parties during a time of economic crisis and austerity. While the FSM did not displace the center-left, it established itself as a credible alternative, particularly among disillusioned voters.

On the other hand, the center-right, including Forza Italia, and far-right, anti-immigration populist parties such as Lega Nord and Fratelli d'Italia, remained peripheral in Bologna's local politics due to the city's entrenched leftist culture. Between 2002 and 2013, these parties made occasional attempts to challenge the center-left's dominance but were largely unsuccessful. The center-right maintained a consistent but minor presence, while the far-right, despite its gradual rise, remained marginal.

Table 1 summarizes in numbers the narratives just exposed, highlighting the vote shares of key parties and coalitions in Bologna across electoral years and election types. The center-left's performance, though historically declining, remained well above national averages. Meanwhile, the anti-immigration populist parties (Lega Nord and Fratelli d'Italia combined) experienced modest growth, and the FSM, nonexistent before 2008, surpassed 15 p.p. points in 2013.

3. EMPIRICAL STRATEGY

We model turnout with linear probability models that exploit the occurrence of income and diversity shocks across the income distribution. Formally, the estimation equation used for the income shocks is the following:

$$\begin{aligned} Turnout_{it} = & \sum_{q=1}^{5} \alpha_q IncQ_{it-1}^{q} + \sum_{s=\{L-;M-;M+;L+\}} \beta_s Shock_{it}^{s} + \\ & + \sum_{s=\{L-;M-;M+;L+\}} \sum_{q=1}^{5} \gamma_{qs} IncQ_{it-1}^{q} \times Shock_{it}^{s} + \\ & + \delta X_{it} + \zeta_{nt} + \theta_p + \varepsilon_{it} \end{aligned} \tag{1}$$

while the estimation equation used for the diversity shocks is:

[10] In 1999, for the first time since 1946, a candidate supported by the center-right parties became mayor. He ran for re-election in 2004 but was then defeated by the center-left candidate. Until today, this remains the only time the city was not governed by a left-wing coalition.

Table 1. Election data from 2004 to 2013.

Election year Type of election	2004 Administrative	2008 General	2009 Administrative	2013 General
Center left	40.1	46.7	36.9	37.4
Center right	27.0	26.6	21.4	14.6
Lega Nord	0.5	3.5	2.3	2.6
Five Star Movement	.	.	2.2	15.3

Note: Data from official results from the Ministry of Interior. The remainder of the shares belong to abstention and a multitude of small parties that characterize the Italian system.

$$
\begin{aligned}
Turnout_{it} = & \sum_{q=1}^{5} \lambda_q IncQ_{it-1}^{q} + \mu_1 Exposure_{it-1} + \mu_2 Exposure_{it-2} + \\
& + \mu_3 Exposure_{it-1} \times Exposure_{it-2} + \sum_{q=1}^{5} \xi_{q1} IncQ_{it-1}^{q} \times Exposure_{it-1} \\
& + \sum_{q=1}^{5} \xi_{q2} IncQ_{it-1}^{q} \times Exposure_{it-2} + \\
& + \sum_{q=1}^{5} \xi_{q3} IncQ_{it-1}^{q} \times Exposure_{it-1} \times Exposure_{it-2} + \\
& + \nu X_{it} + \pi_{nt} + \tau_p + \eta_{it}
\end{aligned}
\tag{2}
$$

where i denotes the eligible voter and t refers to the election years: 2004, 2008, 2009, and 2013. The dependent variable in both specifications is $Turnout_{it}$, a binary indicator of individual electoral participation.

We include X_{it}, a set of time varying and time constant individual characteristics (age bins, sex, marital status, distance from the polling station), and (possibly time varying) covariates at different levels of aggregation: household (% of female, % children, % over 65, number of household members), building where the voter lives (number of households in the building), and precinct (population density, mean household income, Gini Index, % females, % children and % over 65). Given the fine geographic resolution of our data, precinct-level inequality measures reflect the immediate social environment where relative deprivation or affluence may influence voting behavior. We allow for neighborhood-by-year fixed effects (ζ_{nt}, π_{nt}), where n $(n = 1, \ldots, 9)$ refers to the neighborhood of residence,[11] as well as precinct fixed effects (θ_p, τ_p) where p $(p = 1, \ldots, 435)$ denotes the voter's electoral precinct. Finally, ε_{it} and η_{it} are idiosyncratic error terms.

Note that the shocks and all other control variables are also observed in-between elections and therefore we can exploit variation in their lags.[12] $IncQ_{it-1}^{q}$ are the dummies identifying income quintile in the year before an election, and in Equation (1), $Shock_{it}^{s}$ are dummies for the four income shocks $(s = \{L-; M-; M+; L+\})$ that each individual experiences $(S_0$ being the baseline). The full set of interactions between the income quintiles dummies

[11] The city of Bologna is organized into nine geographical areas characterized by shared community and administrative designation.

[12] In a previous related work (Schafer et al. 2022) in-between electoral years' information was not available yet, and could not be used.

and the income shocks dummies identifies the heterogeneous effects of shocks along the income distribution. For example, the marginal contribution to turnout of a $M-$ (medium negative) income shock for an individual belonging to the second quintile of the income distribution is calculated, after estimation, as $\widehat{\beta}_{M-} + \widehat{\gamma}_{2M-}$.

Thanks to these individual shocks, we exploit the existing time variation in income within each quintile in the interacted specification.[13] We can also estimate the main effects of individual income—a crucial time-varying regressor rarely available in empirical studies of electoral turnout—which is likely to capture individual time-varying unobserved heterogeneity (related to personality traits, political interest, etc.), therefore avoiding the black-box nature of individual fixed effects. Notably, including the latter ones in our main specification would change the composition of the baseline group, as voters who never experienced an income shock no longer contribute to the estimation of the income effect, making it difficult to compare the results with and without individual fixed effects. Further, we would also lose everyone who always remained in the same quintile as individual jumps over the income distribution across time are rare. However, an advantage of including individual fixed effects is that they would isolate the impact of the time-varying shock within a person and fully exploit the variation within the observations that contribute to the estimation.

Based on these considerations, we discuss the findings with individual fixed effects as a robustness check in Appendix A3, taking into account the selected sample that contributes to the estimation when we interpret the results obtained with and without individual fixed effects.

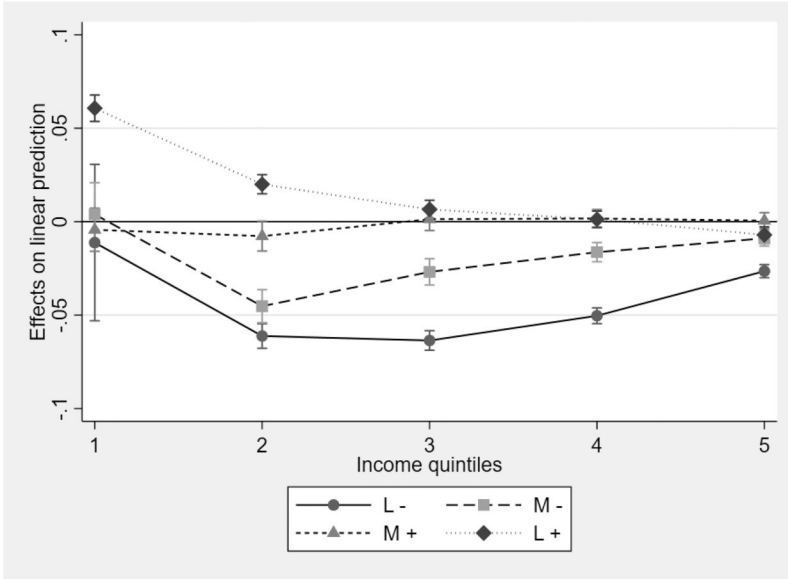
Equation (2) includes dummies for the exposure of individual i to an ethnically diverse household in her building 1 and 2 years before each electoral round ($Exposure_{it-1}$ and $Exposure_{it-2}$), together with the full set of their interactions with the quintile dummies and their cross interaction. Due to the presence of such cross-interaction term (and all the interactions with quintile dummies), we can define the impact of the diversity shock, for each quintile, as the marginal effect of current exposure when past exposure is equal to 0. This corresponds to the effect on turnout of the arrival of at least one ethnic diverse household *1 year* before elections, when *2 years* before no ethnic diverse household was present. For example, the impact on turnout of the diversity shock for an individual belonging to the third quintile of the income distribution is $\widehat{\mu}_1 + \widehat{\xi}_{31}$.

The estimation is performed by means of OLS, with standard errors clustered at the individual level in our main specification. The full estimation results are reported Supplementary Appendix Table A5, where we show that our significance results are robust when standard errors are clustered at higher relevant levels of aggregation (i.e., at the precinct and the neighborhood level).

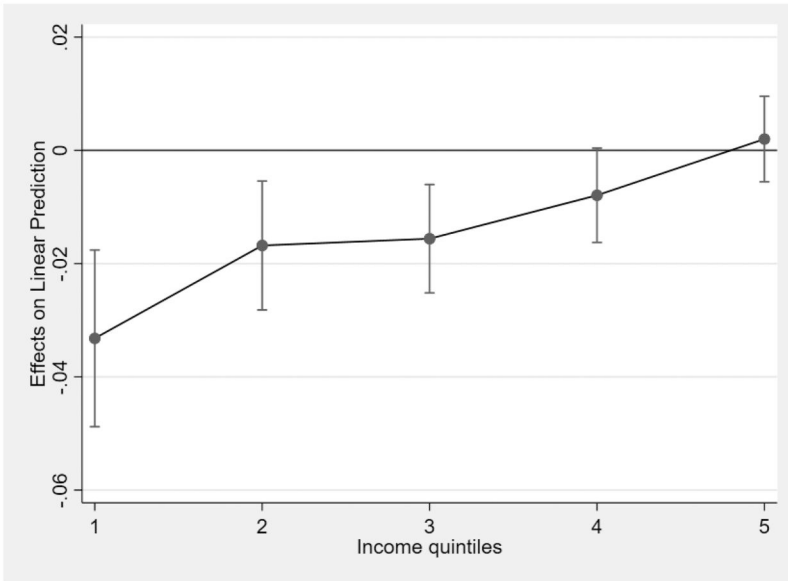
4. MAIN RESULTS

We present here the main results about the effects of income and diversity shocks on the individual probability of turning out to vote. To this purpose, we rely on Figure 2, where we plot marginal effects over income quintiles. In panel (a), results are shown for different types of income shocks, while panel (b) collects results for the diversity shock. Figure 2 reveals a positive "income shock" gradient in voter turnout, and this relationship depends on both the size of the income shock (from L− to L+) and the income class. Positive income shocks matter only for the poor, but they do so only if large (L+), while a medium income shock

[13] As we discuss later, the interacted specification is strongly supported by our results. Testing for constant effects of the shocks across quintiles always leads to rejecting the null hypothesis.



(a) Income Shocks



(b) Diversity Shock

Figure 2 Main effects.
Note: Marginal effects of income shocks (a). The estimated coefficients are explained in the label. Diversity shock (b) on turnout along the income distribution, obtained from regressions 1 and 2, respectively. In both panels, 95% confidence intervals are reported. Supplementary Appendix Table A5 contains the full estimation results upon which the displayed marginal effects are computed.

(M+) does not exert any effect on turnout. Notice that at the first quintile, the income shock L+ implies an increase in turnout of about 6 p.p. relative to receiving a negligible shock. The effect is quite large: it boosts turnout by 8.7% (average turnout is 68.9% at $IncQ^{1}_{it-1}$). Strikingly, this effect reduces by one-third the turnout gap between electors at the bottom and the top income groups. This suggests that a substantial income gain can indeed boost electoral participation among those who struggle to make ends meet. While we discern a positive effect also in the second quintile, it is half the size of the gradient estimated at the bottom of the income distribution.[14]

On the contrary, both large and medium negative shocks (L−, M−) negatively affect voters' turnout throughout the income distribution, with L− displaying a stronger effect at all quintiles. For instance, the estimated size is −6.1 p.p. for L− and −4.4 p.p. for M− at the second quintile. These figures are sizable: a large adverse shock reduces turnout by 7.9%, and a medium shock by 5.7% (average turnout is 77% at $IncQ^{2}_{it-1}$). Further, the effect fades away monotonically as income increases: at the fifth quintile, the effect is still statistically different from zero but heavily reduced in size (−2.6 p.p. for L− and −0.9 p.p. for M−; average turnout is 89% at $IncQ^{5}_{it-1}$).[15] Consistently with the resource theory of political participation (e.g., Brady et al. 1995), our evidence points to an asymmetric role of positive and negative income shocks. In sum, while negative shocks hinder participation of all voters, with stronger effects in the bottom half of the income distribution, a positive one could mobilize economically disadvantaged voters, but only if large enough (L+ has a positive effect, while M+ has no effect).

By and large, our results are qualitatively in line with those of a small but growing literature that investigates the causal effects of individual income shocks on electoral turnout.[16] Unlike these contributions, we exploit administrative data for *both* income and turnout and study the effects of positive *and* negative income shocks along the *entire* income distribution.

Our study primarily focuses on leveraging the granularity of individual-level data to provide novel evidence on how voters directly respond to individual income shocks, which represents a first-order effect on turnout. However, a second-order effect may also arise: at the aggregate level, all individual income shocks will factor into a new level of inequality, and if voters anticipate this, it could also influence their turnout. For this reason, we include the Gini index among the controls at the precinct level interacted with electoral rounds.[17] We find a significant and negative coefficient for inequality on average turnout only in 2013. This finding, coupled with the main ones that negative shocks hinder participation of all voters especially among the poor, seems to suggest that voters' behavior is in line with the mechanism proposed by the relative power theory (Goodin and Dryzek 1980), which posits

[14] This finding is in line with recent empirical works showing that interventions increasing income among the poor have a positive effect on aggregate turnout in several countries, for example, in Brazil (Araujo 2021), Mexico (De La 2013), and New York City (Markovich and White 2022).

[15] One might argue that these results could also be partly driven by individual-specific characteristics setting people on different paths with respect to their turnout response induced by economic shocks. For this reason, we also incorporate individual fixed effects in online Appendix . Reassuringly, the results on negative income shocks stand robust to the inclusion of fixed effects. Only the positive increase in turnout associated to positive shocks for low-income individuals vanishes. See Appendix for details.

[16] See Finseraas (2017), Akee et al. (2020), Schaub (2021), Schafer et al. (2022), Markovich and White (2022), Loeffler (2023), Hirvonen et al. (2024), and Geys and Sorensen (2025).

[17] Precinct-level measurement is particularly suitable for studying inequality and its effects on voting turnout as it captures variation at the most localized scale where citizens experience daily social and economic differences. Unlike aggregated regional or national data, precinct-level indicators reveal fine-grained disparities in income, employment, and demographics that shape perceptions of fairness and political efficacy. This micro-level perspective allows us to identify how contextual inequalities influence individual decisions to participate or abstain from voting, offering a clearer link between local social environments and electoral behavior.

that, when inequality increases, political power becomes concentrated among wealthier individuals and reinforces disparities in political engagement.[18]

We now turn to the results on the diversity shock, shown in Figure 2b. Here, the marginal effect measures the change in the probability of voting at time t induced by the arrival at time $t-1$ of an ethnically diverse household in a building where there were none at time $t-2$. The figure reveals marked differences along the income distribution: a diversity shock discourages electoral participation, with an effect that is statistically different from zero for the first three quintiles and stronger at the bottom of the income distribution, where the magnitude is −3.2 p.p.; then the gradient vanishes monotonically to zero after the fourth quintile.[19]

The arrival of immigrants in one's dwellings exposes natives to perhaps undesired contacts with immigrants, whom they may fear for cultural and/or economic reasons, bringing about a sense of alienation and discontent that electors may choose to express through abstention.[20] This finding points in the direction that voters with fewer resources, for example, due to low education/skills, may be less open-minded towards people with different cultural values than their own and have more to fear from immigrants, who they compete with in the labor market and in access to public services. The poor may also feel that their instances are not well represented in the political arena, as left-wing parties that traditionally represent their interests in redistributive issues also tend to have a pro-immigration stance. [21] The empirical analysis on the vote shares presented in Section 7.1 lends support to this conjecture. In particular, we show that when exposure to ethnic others increases, the share of votes for left-wing parties decreases in poorer precincts. In addition, Supplementary Appendix Figure A8 shows that the decrease in turnout after a diversity shock for poorer individuals is more marked in left-leaning precincts, while if we focus only on weaker left-leaning precincts, we do not see any significant effect of diversity on turnout, see Supplementary Appendix Figure A9. These results, together with the main ones on turnout at the individual level, indicate that poorer voters are disproportionately more likely to turn out less and vote less for left-wing parties in response to diversity shocks. This evidence aligns with the findings of Barone et al. (2016), who document that economically vulnerable municipalities are more likely to experience shifts in voting behavior toward populist and anti-immigration parties as the share of immigrants increases. They argue that economic insecurity in these contexts heightens concerns about labor market competition and public service pressure, making immigration a more salient issue for poorer voters.[22]

One might wonder what happens when an income shock and a diversity shock occur simultaneously. The granularity of our data allows us to address this question, and we do so in

[18] In contrast, conflict theory (Meltzer and Richard 1981) suggests the opposite—that greater inequality heightens political conflict over redistribution, thereby mobilizing both rich and poor voters. These two hypotheses have been recently considered by Szulkin (2022) when looking at the relationship between inequality and political representation by income levels.

[19] The pattern across quintiles is confirmed when we include individual fixed effects, although as expected the size of the marginal effects somewhat shrinks. Once more, we show that those most adversely affected are primarily poor voters. See Appendix for details. Finally, when we restrict the sample to buildings experiencing more turnover in figure, we show that the abstention result is only slightly stronger in this subsample than in the overall one.

[20] As mentioned earlier, our diversity measure accounts exclusively for the arrival of legal immigrants in the building. Most likely, exposure to illegal immigrants would have an even larger discouraging effect on native voters so that we could interpret our estimates as lower bounds of the negative effect of diversity on turnout.

[21] The fact that we identify a negative effect of exposure to diversity on the propensity to vote in a micro-context, does not speak in favor of the so-called "contact hypothesis," which posits that intergroup contacts may promote the reduction of prejudices of natives towards immigrants. Alesina and Tabellini (2024) provide a comprehensive discussion of cultural versus economic forces as drivers of the political consequences of immigration.

[22] An alternative mechanism to explain the negative effects of diversity on turnout might be the reduced scope for social interactions among Italian voters following the arrival of immigrant households, which diminishes opportunities for political discussion, thereby lowering turnout. This mechanism, however, might be more difficult to reconcile with the observed differential effects of diversity shocks along the income distribution.

Section A8. While we do not observe differences in the frequency of income shocks based on whether a diversity shock occurs or not, these shocks may interact by either amplifying or offsetting each other in their relationship with turnout.[23] Supplementary Appendix Figure A14 shows that income shocks, whether accompanied by a diversity shock or not, have generally similar effects, except for large positive shocks. When analyzing large income shocks by quintile (Supplementary Appendix Figures A15 and A16), we find no systematic differences for negative shocks. Note, though, that given the low incidence of simultaneous shocks, confidence intervals remain wide, cautioning against strong conclusions. Finally, for large positive shocks, we find suggestive evidence that low-income individuals show little response to simultaneous shocks, perhaps because they counteract each other (these two effects display opposite directions in the main results). At the upper end of the income distribution, their combined effect reduces turnout.

5. ALTERNATIVE MEASURES OF INCOME SHOCKS

In this section, we explore the robustness of our main results, providing a self-contained analysis that considers continuous measures of income shocks (and their associated specifications).

A given income change may have different levels of salience depending on an individual's position in the income distribution. To account for this fact, in the main specification, we normalize these changes by the standard deviation of absolute income changes within the individual's income decile. While this approach highlights the salience of income shocks, it inherently introduces a relative comparison, as shocks are defined in relation to the standard deviation of absolute income changes within the individual's decile. In this sense, individuals within the same decile serve as a reference group.

For this reason, we also consider alternative ways to measure income shocks, defined as follows:

1) Individual yearly growth rate between $t-2$ and $t-1$, namely a continuous variable measuring the change in income relative to the previous year's individual income, which serves as his own reference point.
2) Individual growth rate relative to income from previous years (not just one), calculated by replacing income at $t-2$ with the average individual income over the past 3 years, both in the numerator and denominator. This average serves as the individual's "reference point", so to smooth out previous fluctuations.
3) Income variation between $t-1$ and $t-2$ (numerator), normalized relative to the average income in the decile (denominator). Namely, a continuous variable relative to the average income in the decile. While continuous, this measure is conceptually the closest to the income shock dummies used in our main specification.

When estimating the income gradient in voter turnout, we allow the slopes to vary across income quintiles and to differ depending on whether the income shock is positive or negative, as we have detected strong asymmetries in the main specification, see Figure 2b. We therefore accommodate these three new variables in a modified version of the main equation,

[23] The frequencies of an income shock with and without a diversity shock are: 12.14 and 12.45 for L−, 6.19 and 6.28 for M−; 6.66 and 6.93 for M+; and 11.67 and 11.94 for L+, respectively.

$$Turnout_{it} = \sum_{q=1}^{5} \alpha_q IncQ_{it-1}^{q} + \sum_{s=\{+;-\}} \sum_{q=1}^{5} \beta_{sq} IncQ_{it-1}^{q} \times Shock_{it}^{s} + \delta X_{it} + \zeta_{nt} + \theta_p + \varepsilon_{it} \quad (3)$$

where the variables $Shock_{it}^{s}$, for each of the three continuous measures of income shock described above, are defined as follows:

$$Shock_{it}^{+} = \begin{cases} Shock_{it} & \text{if } Shock_{it} \geq 0, \\ 0 & \text{if } Shock_{it} < 0 \end{cases} \text{ and } Shock_{it}^{-} = \begin{cases} -Shock_{it} & \text{if } Shock_{it} \leq 0, \\ 0 & \text{if } Shock_{it} > 0 \end{cases}.$$

In this way, we interpret all shocks in absolute value for ease of exposition and interpretation of the results.

Columns 1–3 of Table 2 report, for each of the three new continuous measures of income shocks, the 10 coefficients β_{sq} estimated from Equation (3). These represent the estimated marginal effects of positive or negative values of the shock variables, for each quintile of the income distribution.

Results using the first two variables (Columns 1 and 2), which only take as reference individuals' previous income levels, deliver large negative effects of adverse shocks, slightly reduced for the fifth quintile, coherently with our main specification.[24] The effects of positive shocks follow a coherent pattern too (i.e., positive for lower quintiles, negative for the higher ones), but with coefficients one order of magnitude smaller than their counterparts for negative shocks.[25]

As one might expect, the estimated coefficients in Column 3 display a pattern that is close to our main results. Indeed, the measure of continuous shock considered in Column 3 is conceptually the closest to the income shock dummies we use in the main specification, as it benchmarks the change in individual income with a measure of the average income in the decile.

Although the overall findings are consistent across definitions and align with Figure 2, the estimated coefficients vary in magnitude, reflecting the way the explanatory variables are constructed.

To facilitate comparison of the size of the estimates across them, Figure 3 plots the estimated beta coefficients of the three measures considered in Table 2, separately for negative and positive shocks. Across all definitions, the results show similar patterns across quintiles and a consistent asymmetry between positive and negative shocks, resembling the key patterns in main Figure 2, which reinforces the robustness of our findings.

6. HETEROGENEOUS EFFECTS

We now explore differences in the shock-turnout gradient over the income distribution by electoral round, age, and gender, allowing for an additional level of interactions in

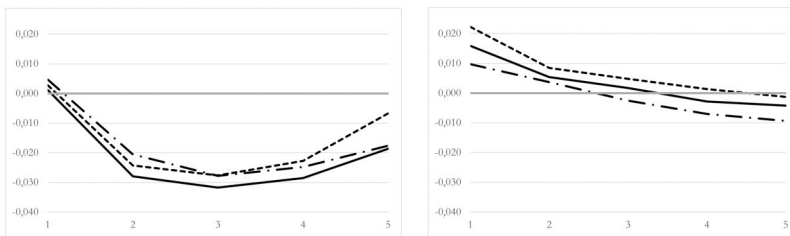
[24] The estimated gradient of a negative income shock in the first quintile is imprecise because, for a large portion of observations, income levels are almost constant and extremely low, often fixed at the no-tax threshold. Consequently, interpreting its magnitude and direction becomes difficult.

[25] The negative coefficients for positive income shocks among the rich may suggest that, for this group, a "positive shock" defined relative to their own past income does not necessarily translate into additional economic resources that affect political participation. Instead, such increases may lower incentives to vote by reducing the perceived stakes of political outcomes. This finding is also consistent with Geys and Sorensen (2025), who find a negative effect of lottery wins on voter turnout in the top decile.

Table 2. Results with continuous measures of income shocks.

Shocks	(1) Growth rate	(2) 3-Y avg growth rate	(3) Relative income shock
IncQ = 1 × Neg. shock	0.0293	0.0316***	0.0497**
	(0.0283)	(0.0110)	(0.0215)
IncQ = 2 × Neg. shock	−0.170***	−0.104***	−0.0785***
	(0.00764)	(0.00779)	(0.00405)
IncQ = 3 × Neg. shock	−0.177***	−0.146***	−0.0651***
	(0.00660)	(0.00736)	(0.00279)
IncQ = 4 × Neg. shock	−0.156***	−0.133***	−0.0443***
	(0.00602)	(0.00696)	(0.00216)
IncQ = 5 × Neg. shock	−0.0819***	−0.0794***	−0.00317**
	(0.00452)	(0.00550)	(0.00132)
IncQ = 1 × Pos. shock	0.0144***	0.0140	0.104***
	(0.00276)	(0.00853)	(0.00692)
IncQ = 2 × Pos. shock	0.0110***	0.0101***	0.0467***
	(0.00192)	(0.00338)	(0.00642)
IncQ = 3 × Pos. shock	0.00684*	−0.00798**	0.0375***
	(0.00353)	(0.00387)	(0.00799)
IncQ = 4 × Pos. shock	−0.0143***	−0.0282***	0.0129
	(0.00538)	(0.00504)	(0.00980)
IncQ = 5 × Pos. shock	−0.0188***	−0.0325***	−0.00383
	(0.00443)	(0.00431)	(0.00287)
Individual level controls FE	Yes	Yes	Yes
Precinct FE	Yes	Yes	Yes
Year × neighborhood FE	Yes	Yes	Yes
Household level controls × Year FE	Yes	Yes	Yes
Precinct level controls × year FE	Yes	Yes	Yes
Observations	1,081,059	775,313	1,081,059
R^2	0.066	0.066	0.065

Note: Individual-level OLS regressions, with the sample based on all those eligible voters that did not change address. Dependent variable is a dummy indicating whether individuals voted at elections in year 2004, 2008, 2009, and 2013. We include all controls and fixed effects as in the main analysis. Positive and negative (in absolute value) income shocks, interacted by income quintiles, are defined as follows: yearly growth rate between $t-2$ and $t-1$ (column 1); growth rate where we replace income at $(t-2)$ with the average income in the past 3 years (column 2); variation in income between $(t-2)$ and $(t-1)$ relative to the average income in the decile (column 3). Standard errors clustered at the individual level in parentheses. $^{***}p<0.01$, $^{**}p<0.05$, $^{*}p<0.1$.



(**a**) Negative Income Shocks (**b**) Positive Income Shocks

Figure 3. Beta Coefficients for continuous income shocks.
Note: Beta coefficients from the baseline regression in Equation (3) and Table 2. Panel (a) represents the beta coefficients for negative income shocks and Panel (b) represents the beta coefficients for positive income shocks. The solid line represents the individual income growth rate, the dash–dot line the 3-year average growth rate, and the dotted line the relative income shock.

Equations (1) and (2).[26] As for the income shock, we will focus on the large negative one (L−).

6.1 Electoral rounds

Figure 4 illustrates the results of a triple-interacted specification (shock × quintile × round) when the type of election is a municipal (panels a and c) or a national one (panels b and d), for both types of shocks: income (panels a and b) and diversity (panels c and d). Each regression is run only on the relevant rounds of elections.

Interestingly, for both types of elections, municipal and national, our time span covers one election before and after major economic crises: specifically, before and after the 2007–2008 financial crisis, for municipal elections, and before and after the 2011 European debt crisis, for national elections. Moreover, in October 2009, after municipal elections were held in Bologna, a new political force entered the Italian political arena, namely the FSM, a populist party founded by the former comedian Beppe Grillo. The Movement had no political stance on immigration but criticized austerity policies, advocating the introduction of income support schemes for those mostly hit by the crises and depicting itself as the new political opposition against left- and right-wing coalitions that alternated in power in Italy.

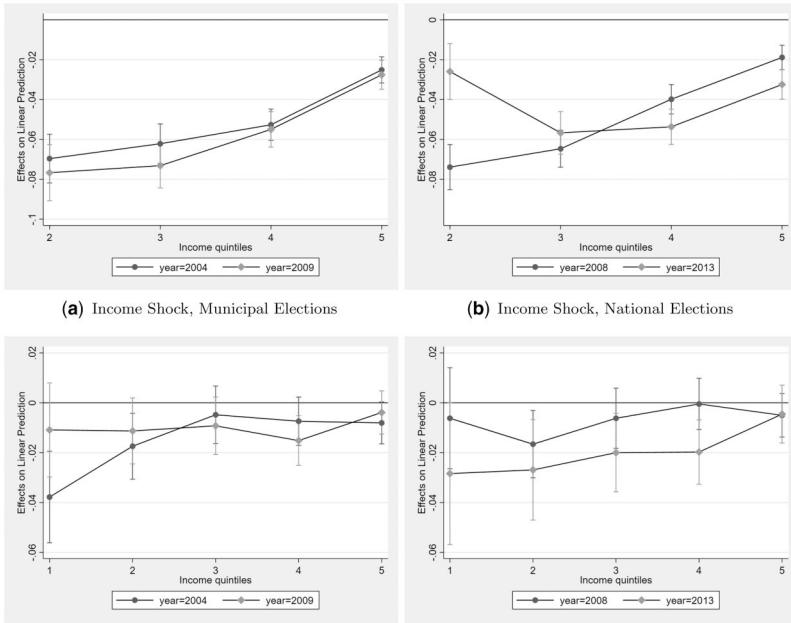
By allowing for heterogeneous effects of our shocks by electoral round, we seek to capture demobilization/mobilization effects in the aftermath of crises and following the entry of an anti-establishment populist party in the Italian political arena.

A striking difference arises when evaluating the effect of the L− income shock at different electoral rounds. Specifically, although panel (a) shows no evidence of heterogeneous effects of the L− income shock across quintiles between 2004 and 2009 (albeit the estimated coefficient is 1–2 p.p. larger in absolute value at the second and third quintiles in 2009, that is, post the financial crisis and before entry of the FSM), we spot a milder negative impact of the shock on the poor in 2013 (i.e., post the debt crisis and after the entry of the FSM), relative to 2008. The opposite trend is observed for the rich (panel b). In particular, in absolute value, the coefficient of the L− income shock is approximately 5 p.p. *lower* in 2013 than in 2008 at the second quintile and 2 p.p. *higher* at the upper two quintiles.

When diversity shocks are considered, for both types of elections, there are mild to null heterogeneous effects by election round, both between 2004 and 2009 and between 2008 and 2013 (panels c and d).

Overall, these findings suggest that entry of the FSM, with its anti-party and pro-poor rhetoric, may have contributed to mobilizing the most vulnerable, lower-income class voters in the aftermath of economic crises. This conclusion is supported by the analysis presented in Section 7.2, where we document that in 2013, following the entry of the FSM into the Italian political arena, voters in poorer areas with a higher share of individuals who experienced large negative income shocks were much more likely to support this party. Specifically, the results presented in Table 4 reveal a statistically significant and large positive association between highly negative shocks and voting for the FSM in poor precincts, namely those belonging to the first income tercile. This finding is consistent with our conjecture that the availability of this additional political option in 2013 could have mitigated the effect of negative income shocks on turnout among the poor, as it provided them with a party they perceived as representing their interests.

[26] For example, when exploiting possible heterogeneous effects of diversity shocks by gender, the interaction of the female dummy with each term in Equation (2) will be added to the main estimation equation and marginal effects will be computed accordingly.



(**a**) Income Shock, Municipal Elections (**b**) Income Shock, National Elections

(**c**) Diversity Shock, Municipal Elections (**d**) Diversity Shock, National Elections

Figure 4. Heterogeneous effects by electoral round.Note: Marginal effects of L-income shocks (a and b) and diversity shock (c and d) on turnout along the income distribution, by election years: municipal elections in 2004 and 2009, and national elections in 2008 and 2013, obtained from a regression where triple interactions between each shock, income quintiles, and electoral round are allowed. In all panels, 95% confidence intervals are reported.

While poorer precincts hit by economic shocks shifted toward the FSM, their support for the Center-Left (CSX) did not change significantly (Column 3). In contrast, declines in CSX vote shares appear concentrated among richer precincts affected by income losses, suggesting that wealthier voters responded to economic hardship by disengaging from traditional parties rather than switching to the FSM.

Finally, the entry of the FSM and economic crises do not seem to significantly change the probability of turning out to vote after experiencing a diversity shock. This may reflect the neutral stance of the Movement on immigration.

6.2 Individual-level heterogeneity

Breaking down demographic data, we can document age disparities in turnout (Supplementary Appendix Table A4). The observed turnout is 78% below age 30, 81% in the 30–45 group, and over age 60, and it reaches the peak of 88% in the 45–60 age bin. When we allow for heterogeneous effects of income and diversity shocks across age groups, we find that in the case of a large negative income shock, the lion's share of the negative coefficient among the poor is due to voters aged 60 years or more (Figure 5a). In particular, individuals at the bottom of the income distribution are quite sensitive to adverse income shocks: their probability of voting decreases by 11 p.p., that is, about 13.6% of the average turnout of people above 60. The effect fades away monotonically as income increases, but remains sizable up to the fourth quintile. Regarding the diversity shock (Figure 5b), we

Table 4. Vote shares in 2013.

Dep. Var.	(1) % FSM	(2) % FSM	(3) % CSX
Share of HH with L−	39.57**		
	[16.30]		
Share of HH with L-*average HH income	−1.29**		
	[0.663]		
Average HH income	0.152		
	[0.101]		
Share of HH with L− in the first tercile		20.6696***	12.2563
		[7.4855]	[19.7773]
Share of HH with L− in the second tercile		6.4959	−24.9812
		[10.1690]	[20.8619]
Share of HH with L− in the third tercile		0.4704	−55.5184***
		[7.7253]	[18.7679]
Second tercile		1.7419	4.0537
		[1.3913]	[3.2699]
Third tercile		1.6702	6.1899*
		[1.2722]	[3.2791]
Controls	Yes	Yes	Yes
Observations	437	437	437
R^2	0.5034	0.5149	0.5683

Note: OLS regressions where the dependent variable is the precinct's vote share obtained by the FSM in columns 1 and 2, and center-left in Column 3, in 2013. Additional control variables are precinct characteristics (such as Gini index, share of women, and share of individuals above 65 years). Robust standard errors are reported in parentheses.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

uncover a similar age pattern, but weaker in terms of size and statistical significance: poor elderly voters substantially drive the negative effect on turnout.

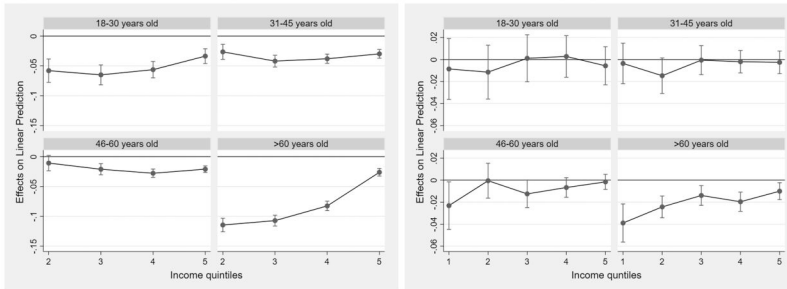
Interestingly, in our sample, male and female turnout is comparable: 84% and 81%, respectively. But, as shown in Figure 6, some gender differences exist in the effect of income shocks. Specifically, the negative response to the income shock is significantly larger among males until the third quintile (−7 p.p. vs. −5,3 p.p., see panel a). This may be due to the imbalance in the contribution to household income across spouses, where males (who typically contribute more) might be severely hit in terms of individual income.

7. VOTE SHARES—PRECINCT ANALYSIS

In this section, we explore electoral results at the precinct level. The sample consists of about 437 observations in each electoral round. This analysis complements the discussion of the results presented in the previous individual-level analysis on turnout.

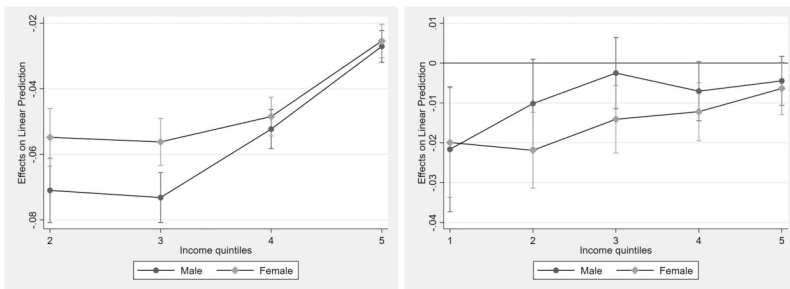
7.1 Voting for the center-left party

In Table 3, we present OLS regressions analyzing vote shares for the Center-Left Party (i.e., the Democratic Party), using precincts as the unit of observation. The regressions include two measures of poor precincts (e.g., belonging to the first income tercile or being below the median income), the proportion of voters within a precinct exposed to ethnic diversity in their building, other time-varying precinct-level attributes (i.e., share of females, share of old individuals, and Gini index), as well as precinct and year fixed effects.



(**a**) Income Shock (**b**) Diversity Shock

Figure 5. Heterogeneous effects by age.Note: Marginal effects of L-income shocks (a) and diversity shock (b) on turnout along the income distribution by age bins, obtained from a regression where triple interactions between each shock, income quintiles, and age bins dummies are allowed. In all panels, 95% confidence intervals are reported.



(**a**) Income Shock (**b**) Diversity Shock

Figure 6. Heterogeneous effects by gender.Note: Marginal effects of L-income shocks (a) and diversity shocks (b) on turnout along the income distribution, by gender, obtained from a regression where triple interactions between each shock, income quintiles, and gender dummy are allowed. In both panels, 95% confidence intervals are reported.

The results confirm a well-documented pattern: the Center-Left Party tends to gain more votes in poorer precincts. Specifically, precincts in the lowest income tercile show an estimated coefficient of 1.28 (Column 1) and precincts with an average income below that of the median precinct have an estimated coefficient of 1.7 (Column 2). Conversely, vote shares decrease with higher average precinct income, as indicated by the coefficient of −0.4 in Column 3. More interestingly, the interaction terms between income measures and exposure to ethnic diversity are negative in the first two columns and positive in the third, suggesting that exposure to ethnic diversity counteracts the relationship between income and support for the Center-Left Party. In other words, at the margin, greater exposure to ethnic diversity is associated with a decline in vote shares for left-wing parties in poorer precincts. These findings, combined with the individual-level evidence on voter turnout, indicate that poorer voters are disproportionately more likely to reduce turnout and vote less for left-wing parties in response to diversity shocks, which corroborates the conjecture discussed in the main results in Figure 2a.

Table 3. Vote shares for center-left (precinct level).

	(1)	(2)	(3)
First income tercile dummy	1.2760**		
	[0.6183]		
Below median income dummy		1.6962***	
		[0.6300]	
Mean income in the precinct			−0.4050***
			[0.0901]
Share of ethnic others interacted with:			
(i) First income tercile dummy	−0.3498***		
	[0.0874]		
(ii) Below median income dummy		−0.2333**	
		[0.1140]	
(iii) Mean income in the precinct			0.0330***
			[0.0097]
Share of ethnic others	0.1110	0.0741	−0.8214***
	[0.0940]	[0.1244]	[0.1955]
Controls	Yes	Yes	Yes
Precinct and year FE	X	X	X
Observations	1746	1746	1746
R^2	0.9472	0.9465	0.9478

Note: OLS regressions where the dependent variable is the vote share obtained by the center-left party in each precinct at elections in years 2004, 2008, 2009, and 2013. The main independent variables are indicators for poor precincts: if a precinct belongs to the first income tercile in the distribution (Column 1), Average Income in the precincts smaller than that of the median precinct. We include time-varying precinct characteristics (such as Gini index, share of women, share of individuals above 65 years), precinct fixed effects, and year fixed effects. Standard errors are clustered at the precinct level and reported in parentheses.
$^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

7.2 Voting for a new party in 2013: The FSM

In Section 6, we explored the potential differential effects of income shocks on voter turnout in 2008 and 2013, the first electoral year in which the anti-establishment FSM competed for seats in the Italian Parliament (see Figure 4b). This analysis aimed to determine whether the Movement's entry influenced voter turnout patterns. While we did not anticipate its entry to moderate the effect of exposure to ethnic diversity on voting behavior especially among the poor—given the Movement's lack of a clear stance on immigration, we conjecture that it could have mitigated the impact of economic hardship on turnout if the FSM captured a portion of protest votes among the poor that might otherwise have contributed to abstention. To support this interpretation, we show here that the FSM indeed secured a higher share of votes in poorer precincts with a larger proportion of households affected by sizable negative income shocks.

As shown in Table 4 (Column 2), the positive effect of adverse income shocks on the vote share of the FSM is entirely driven by poorer precincts. In line with this result, we see in Column 1 that precincts with higher adverse income shocks are significantly more likely to vote for the FSM (coefficient of 39.57 in Column 1), but this association substantially decreases at the average income when we consider the interaction term (11.19 with an income of 22 thousands). Column (3) indicates that in poorer precincts, adverse income shocks did not translate into any significant change in support for the Center-Left (CSX). By contrast, reductions in CSX vote shares are primarily observed in richer precincts exposed to negative income shocks. This pattern suggests that higher-income voters reacted to economic distress by withdrawing support from traditional parties, possibly through abstention or political disengagement, rather than by redirecting their votes toward the FSM.

8. CONCLUSIONS

Economic adversity is usually considered par for the alienation of voters and fear of immigrants might fuel the increasing support of populist parties. By means of a rich individual-level dataset merging longitudinal registers, taxable income, and turnout records of the universe of residents in Bologna, a large municipality in northern Italy, this article contributes to the literature on the socio-economic determinants of individual electoral turnout, providing a fresh perspective on a long-standing issue which is crucial for healthy democracies, that is equality in political participation.

The availability of unique fine-grained geo-localized and longitudinal individual-level data allows us to work with new and very accurate measures of micro-level shocks on income and exposure to ethnic diversity as potential drivers of the electoral turnout of natives. By relying on administrative data, our estimates are not prone to measurement error, which plagues analyses based on survey data.

In this setting, we establish a set of compelling results that strongly support the "resource-based" theory of electoral turnout. We uncover a sizable negative effect of adverse income and diversity shocks on electoral turnout, whose magnitude is larger for less affluent and older voters. On the contrary, positive income shocks foster political participation among the poor.

Two remarks are in order. First, although we restrict our attention to Bologna, this venue is particularly suitable for our study. At least since Putnam et al. (1994), Bologna is renowned for its profound civic engagement: our estimated effects can thus be taken as lower bounds that can be expected to be larger in other contexts. Second, while the variation used in our estimation strategy is not derived from a natural experiment and therefore precludes causal interpretation, our findings provide new evidence on the presence of a positive income gradient in individual electoral participation and a negative association with close exposure to ethnic others.

Finally, we show that, following the entry of a new populist party in the political arena, the FSM, the effect of negative income shocks on turnout is dampened for the poor and enhanced for the rich. The entry of a populist party may have contributed to mobilizing poor voters when hit by adverse income shocks associated with economic crises, a result that is likely to generalize to other contexts. Instead, rich voters are demobilized by the crises and increasingly choose abstention, as the Five Star agenda is meant to capture the votes of the less affluent.[27]

While our findings are consistent with the idea that the emergence of the FSM interacted with economic distress to shape voter mobilization, we cannot rule out that other contextual factors related to the financial crisis also played a role. Our design captures individual exposure to income losses, but broader macroeconomic developments during this period may have influenced how voters reacted to these shocks, potentially contributing—alongside the entry of the new party—to the observed dampening of the negative effect of income shocks among poorer voters in 2013. Clarifying the relative importance of these mechanisms remains an important avenue for future research.

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[27] This pattern is in line with the implications of conflict theory, as developed in Meltzer and Richard (1981), according to which rising inequality increases political demand for redistribution among lower-income groups. When mainstream parties fail to channel such preferences, populist movements can emerge as alternative vehicles for the median voter's redistributive aspirations, thereby reshaping patterns of turnout and class-based voting.

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CONFLICT OF INTEREST STATEMENT

None declared.

REFERENCES

Akee, R., W. Copeland, J. Costello, J. Holbein, and E. Simeonova. 2018. "Family Income and the Intergenerational Transmission of Voting Behavior: Evidence from an Income Intervention. *NBER Working Paper*. National Bureau of Economic Research.

Akee, R., W. Copeland, J. Costello, J. Holbein, and E. Simeonova. 2020. "Human Capital and Voting Behavior across Generations: Evidence from an Income Intervention," 114 *American Political Science Review,* 609–16.

Alesina, A., and E. La Ferrara. 2000. "Participation in Heterogeneous Communities," 115 *The Quarterly Journal of Economics* 847–904.

Alesina, A., and M. Tabellini. 2024. "The Political Effects of Immigration: Culture or Economics?" 62 *Journal of Economic Literature* 5–46.

Andersson, H., and S. H. Dehdari. 2021. "Workplace Contact and Support for Anti-Immigration Parties," 115 *American Political Science Review* 1159–74.

Araujo, V. 2021. *Does Receiving a Basic Income Encourage Citizens to Turn out to Vote? Evidence from Mayoral and General Elections in Brazil*. mimeo. Cambridge MA: Cambridge Open.

Barone, G., A. D'Ignazio, G. de Blasio, and P. Naticchioni. 2016. "Mr. Rossi, Mr. Hu and Politics. The Role of Immigrants in Shaping Natives' Voting Behavior," 136 *Journal of Public Economics* 1–13.

Bellettini, G., C. Berti Ceroni, and C. Monfardini. 2016. "Neighborhood Heterogeneity and Electoral Turnout," 42 *Electoral Studies* 146–56.

Bellettini, G., C. Berti Ceroni, and C. Monfardini. 2020. "Immigration, Ethnic Diversity and Voting: The Role of Individual Income," 61 *European Journal of Political Economy* 101840.

Bhatti, Y., B. Danckert, K. M. Hansen. 2017. "The Context of Voting. Does Neighborhood Ethnic Diversity Affect Turnout?" 95 *Social Forces* 1127–44.

Brady, H., S. Verba, and K. Schlozman. 1995. "Beyond Ses: A Resource Model of Political Participation," 89 *American Political Science Review* 271–94.

Cagé, J. 2024. "Political Inequality," 16 *Annual Review of Economics* 455–90.

Cagé, J., and T. Piketty. 2023. *Une histoire du conflit politique: Élections et inégalités sociales en France, 1789–2022*. Éditions du Seuil, Paris. English translation: A History of Political Conflict. Elections and Social Inequalities in France, 1789-2022. Harvard University Press.

De La, A. L. 2013. "Do Conditional Cash Transfers Affect Electoral Behavior? Evidence from a Randomized Experiment in Mexico," 57 *American Journal of Political Science* 1–14.

Dinesen, P. T., and K. M. Sønderskov. 2016. "Ethnic Diversity and Social Trust. Evidence from the Micro-Context," 80 *American Sociological Review* 550–73.

Finseraas, H. 2017. "The Effect of a Booming Local Economy in Early Childhood on the Propensity to Vote: Evidence from a Natural Experiment," 47 *British Journal of Political Science* 609–29.

Fowler, A. 2013. "Electoral and Policy Consequences of Voter Turnout: Evidence from Compulsory Voting in Australia," 8 *Quarterly Journal of Political Science* 159–82.

Geys, B., and R. J. Sorensen. 2025. "The Causal Effect of Affluence on Voter Turnout: New Evidence from Lottery Winning," 55 *British Journal of Political Science* 1–10.

Goodin, R., and J. Dryzek. 1980. "Rational Participation: The Politics of Relative Power," 10 *British Journal of Political Science* 273–92.
Guiso, L., H. Herrera, M. Morelli, and T. Sonno. 2024. "Economic Insecurity and the Demand of Populism in Europe," 91 *Economica* 588–620.
Hirvonen, S., Schafer J., and J. Tukiainen. 2025. "Policy Feedback and Voter Turnout: Evidence from the Finnish Basic Income Experiment," 69 *American Journal of Political Science* 1388–405. https://doi.org/10.1111/ajps.12915
ISMU. 2023. *Italian Report on Migrations, Ventinovesimo Rapporto Sulle Migrazioni*. Technical Report, ISMU Foundation. Milan, Italy.
Jungkunz, S., and P. Marx. 2022. "Income Changes Do Not Influence Political Involvement in Panel Data from Six Countries," 61 *European Journal of Political Research* 829–41.
Loeffler, H. 2023. "Does a Universal Basic Income Affect Voter Turnout? Evidence from Alaska," 11 *Political Science Research and Methods* 521–36.
Madestam, A., D. Shoag, S. Veuger, and D. Yanagizawa-Drott. 2013. "Do Political Protests Matter? Evidence from the Tea Party Movement," 128 *The Quarterly Journal of Economics* 1633–85.
Markovich, Z., and A. White, 2022. "More Money, More Turnout? Minimum Wage Increases and Voting," 84 *Journal of Politics* 1834–8.
Meltzer, A., and S. Richard. 1981. "A Rational Theory of the Size of Government," 89 *Journal of Political Economy* 914–27.
Putnam, R. D. 2007. "E Pluribus Unum: Diversity and Community in the Twenty-First Century," 30 *Scandinavian Political Studies* 137–74.
Putnam, R., R. Leonardi and R. Nanetti. 1994. *Making Democracy Work: Civic Traditions in Modern Italy*. Princeton, NJ: Princeton University Press.
Rosenstone, S. 1982. "Economic Adversity and Voter Turnout," 26 *American Journal of Political Science* 25–46.
Schafer, J., E. Cantoni, G. Bellettini, and C. Berti Ceroni. 2022. Making Unequal Democracy Work? The Effects of Income on Voter Turnout in Northern Italy. 66 *American Journal of Political Science* 745–61.
Schaub, M. 2021. "Acute Financial Hardship and Voter Turnout: Theory and Evidence from the Sequence of Bank Working Days," 115 *American Political Science Review* 1258–74.
Smets, K., and C. Van Ham. 2013. "The Embarrassment of Riches? A Meta-Analysis of Individual-Level Research on Voter Turnout," 32 *Electoral Studies* 344–59.
StatsDept. 2010. *L'immigrazione Straniera in Emilia Romagna. dati al 2008*. Technical report, Osservatorio regionale sul fenomeno migratorio, Regione Emilia Romagna, Bologna, Italy.
Szulkin, J. 2022. *Income Inequality and the Descriptive Representation of Income. Mimeo*. Uppsala: Uppsala University.
Vernby, K. 2013. "Inclusion and Public Policy: Evidence from Sweden's Introduction of Noncitizen Suffrage," 57 *American Journal of Political Science* 15–29.

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