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IN BRAZIL'S LOCAL ELECTIONS**

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SHARED CLASS AS AN ELECTORAL HEURISTIC IN BRAZIL'S LOCAL ELECTIONS*

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ABSTRACT

Do voters use a candidate's class as an electoral heuristic? And if so, how? Drawing on observational and experimental evidence from Brazil's local elections (2004–2016), I provide evidence that voters use shared class to draw inferences about a candidate's type: candidates from different classes receive similar overall levels of support, but receive disproportionate support from voters who share their class. The mechanisms driving this finding vary by a voter's relative class position: upper-class voters use shared class to draw inferences about a candidate's quality, trustworthiness, and distributive commitments, but lower-class voters only use shared class to draw inferences about a candidate's trustworthiness and distributive commitments.

RESUMO

Eleitores usam a classe social de candidatos como heurística eleitoral? Se sim, como? Com base em dados provenientes de observações e experimentos em eleições locais no Brasil (2004-2016), eu apresento evidências de que as inferências que eleitores fazem sobre o tipo de candidato variam dependendo se eleitor e candidato pertencem a mesma classe social ou não: candidatos de diferentes classes sociais recebem, no geral, mesmo nível de apoio, mas recebem apoio desproporcional de eleitores que compartilham sua classe. Os mecanismos que levam a essa descoberta variam de acordo com a classe social dos eleitores: eleitores de classes altas usam classe para fazer inferências sobre a qualidade, a credibilidade, e o compromisso dos candidatos com políticas distributivas, mas eleitores de classes baixas usam classe somente para fazer inferências sobre a credibilidade e o compromisso dos candidatos com políticas distributivas.

Due to widespread decentralization reforms over the past three decades, local governments across the world increasingly play an important role in policy formulation, revenue collection, and program administration. These shifts have been particularly acute in the global south, where decentralization reforms have occurred alongside local democratization reforms (Campbell 2003). Changes in the vertical distribution of power mean that local elections now have important distributive stakes for core policy domains like health care, education, housing, and social assistance in many contexts (Ferwerda 2015, Holland 2017).

Even though these reforms are often adopted to increase democratic responsiveness (Faguet 2012), it is unclear whether voters are equipped to cope with the increasingly distributive stakes of local elections. In national elections, voters can infer candidates' distributive commitments from their partisan affiliations and political track records, but in local elections, voters tend to have fewer sources of information. Furthermore, in local elections, partisan labels are often uninformative or absent (Sabatini 2003), and candidates tend to be political neophytes who lack the established track records of candidates for state and national offices. Combined, these characteristics of local elections can make it difficult for voters to identify candidates who share their distributive commitments. This challenge is particularly severe in the global south, where even national elections tend to be low-information elections (Harding and Stasavage 2013).

In an attempt to understand how voters respond to this challenge, this article considers one heuristic that voters can use to identify candidates who share their interests in low-information contexts: *class*. Although political scientists have devoted substantial attention to the ways in which other types of descriptive traits, including gender and ethnicity, function as electoral heuristics, scholars have only recently turned their attention to class (Carnes and Sadin 2014, Carnes and Lupu 2016a).¹ This neglect is surprising because the close link between an individual's class position and his or her material interests means that class is often at the heart of political conflict (Moore 1966, Boix 2003, Acemoglu and Robinson 2005).

To explore how class functions as an electoral heuristic in decentralized contexts, this paper draws on evidence from Brazil, where decentralization reforms have increased the stakes of local elections, but voters often have access to limited information about candidates. Specifically, it tests the relationship between candidate class and vote choice using a combination of observational and experimental approaches, including an original data set with information about the class support of more than 60,000 mayoral candidates and 900,000 city council candidates; candidate pamphlets; and the reanalysis of a video-based survey experiment (Bueno and Dunning 2017a).

The main finding is that a candidate's class has a negligible effect on *how much* support that candidate receives, but a large impact on *from whom* that candidate receives support. On average,

¹Throughout, I use the term *class* flexibly to refer to "groups differentiated along a hierarchy of socioeconomic status" (Handlin 2013, 143).

candidates from different classes perform similarly in local elections, but candidates receive more support from voters who are closer to the candidates' class positions. Results from a survey experiment provide suggestive evidence that the reasons behind this preference vary by a voter's relative class position: upper-class voters seem to use class to draw inferences about a candidate's competence, trustworthiness, and distributive commitments, but lower-class voters only use class to draw inferences about a candidate's trustworthiness and distributive commitments, not their competence. These differences map onto the ways in which upper-class and lower-class candidates present themselves in promotional materials and are consistent with ethnographic accounts of voting behavior in Brazil.

The theoretical framework and evidence presented in this paper advance a nascent literature that explores how class works as an electoral heuristic (Carnes and Sadin 2014, Carnes and Lupu 2016a, Wüest and Pontusson 2018). Theoretically, the paper provides a framework for thinking about how *shared class* – the interaction between voters' and candidates' classes – might matter for vote choice. In doing so, it departs from previous work, which largely focuses on the aggregate effects of candidate class on vote choice. And empirically, it provides evidence demonstrating that this distinction matters: class has a large *interactive* effect on vote choice in Brazil's local elections, but a limited *aggregate* effect.

The paper also provides a preliminary exploration of the mechanisms through which class matters. Specifically, it explores the heterogeneous effects of candidate class on voters' evaluations of a candidate's competence, trustworthiness, and distributive commitments. Drawing on both experimental and qualitative evidence, the analysis suggests that there are asymmetric mechanisms underlying the main finding: upper- and lower-class voters both prefer candidates who share their class, but likely do so for different reasons. Politicians seem to recognize these differences and emphasize the positive attributes of their class identity.

More broadly, the findings presented here have implications for understanding vote choice in low-information environments. The findings are consistent with the expectation that voters use descriptive traits to learn about candidates, but they shed light on the complex ways in which those traits can be used – and how they can be used in heterogeneous ways by in-group and out-group members. Other descriptive traits with complex stereotype content (e.g., gender or ethnicity) might have similar interactive effects on vote choice.

VOTE CHOICE IN LOW-INFORMATION ENVIRONMENTS

A fundamental issue for effective democratic representation is *selection*: voters need to be able to select politicians who will advance their interests. This task is challenging because citizens have to rely on publicly available information when voting, but that information is often biased

because candidates have an incentive to misrepresent their true type in order to win elections. This information asymmetry between voters and candidates leads to *adverse selection*, in which voters select candidates who are a poor match for their preferences (Fearon 1999, Besley 2005).

Adverse selection is potentially more common in local elections, where the heuristics that voters can use to judge a politician's credibility – such as political track records and partisan labels – tend to be either absent or uninformative. For instance, local candidates often lack established political track records because they are first-time candidates – particularly in contexts with strict term limits. And the relative weakness of local party systems means that party labels are often uninformative in local elections. In many contexts, local party labels tend to provide a meaningful signal only insofar as they indicate a candidate's viability and ability to access resources at higher levels of government, rather than a candidate's policy commitments (Conroy-Krutz et al. 2016).² The absence of these information sources is a problem because voters recognize that candidates have an incentive to pander in their campaign appeals, and therefore they rely on these other types of information to evaluate the credibility of candidates' promises (Keefer 2007).

In the absence of credible policy promises, political track records, and established party labels, voters often turn to descriptive traits to draw inferences about candidates. For example, a large literature finds that voters in low-information contexts make inferences about candidates based on their gender (Koch 2000, Sanbonmatsu 2002, McElroy and Marsh 2010); race and ethnicity (McDermott 1998, Chandra 2007, Carlson 2015); religion (McDermott 2009, Campbell et al. 2011); and even physical attractiveness (Berggren et al. 2010, Lenz and Lawson 2011). However, one potentially salient candidate trait has drawn surprisingly limited attention in previous work: *class*. Despite the widespread prevalence of class distinctions across societies, scholars have only recently started to explore how a candidate's class might matter for their electoral performance.

CLASS AS AN ELECTORAL HEURISTIC

Existing work on class as an electoral heuristic falls within two broad camps. First, several studies explore the electoral salience of occupational status in low-information contexts. These studies treat class as a *qualification*: candidates receive more support when their occupations are well-respected or indicate their qualifications for a given office (Dubois 1984, McDermott 2005, Campbell and Cowley 2014, Atkeson and Hamel 2018). These findings appear robust, but have only been established in low-stakes elections, such as county coroner and village councilor (e.g., Byrne and

²Partisan cues have limited electoral salience in weak party systems (Greene 2011, Bleck and Van de Walle 2013, Brader et al. 2013).

Pueschel 1974, Mechtel 2014), and it is unclear whether the higher distributive stakes of elections in decentralized contexts matter for how voters interpret class cues.³

Second, another set of studies considers whether a candidate's class activates *stereotypes*, which – in turn – shape voters' beliefs about a candidate's competence and distributive commitments. Building on a large literature in social psychology that finds that rich people are stereotypically perceived as competent but lacking empathy (Christopher and Schlenker 2000, Fiske et al. 2002, Cuddy et al. 2008), research in this vein is motivated by the expectation that voters will view wealthier candidates as more competent, but also more conservative.⁴ This theoretical expectation receives mixed support: some authors find supportive evidence (Sadin 2014), but the most rigorous study – a series of text-based survey experiments fielded in the United States, United Kingdom, and Argentina (Carnes and Lupu 2016a) – uncovers no evidence that candidate class matters for vote choice.⁵ Thus, although grounded in plausible psychological mechanisms, the *stereotype* model receives mixed empirical support at best.

While the *qualification* and *stereotype* models provide important insights into how a candidate's class might affect his or her overall electoral performance, both are limited by their focus on how candidate class shapes *all* voters' evaluations. The underlying assumption in both approaches is that class provides an identical signal to voters, regardless of a voter's own class position.⁶ Yet, if voters draw inferences about candidates based on the extent to which candidates resemble themselves, these aggregate effects of candidate class on vote choice might mask heterogeneous effects for voters from different classes.

Towards a theory of shared class

Here, I elaborate on this possibility and explain why class has the potential to have an interactive effect on vote choice, not simply an invariant one. To start, it is helpful to distinguish between several types of inferences that voters can draw about candidates: first, there are inferences that are likely invariant across classes. For instance, the *qualification* model expects that all voters will draw positive inferences about the competence of candidates employed in professions that signal

³This distinction draws on work by Oliver (2012), who distinguishes between *managerial* and *distributive* politics. The underlying assumption is that – by raising the stakes of local elections – decentralization shifts local politics from managerial politics towards distributive politics.

⁴The relationship is different when focusing on a candidate's class origins: candidates from upper-class families are not viewed as more competent than those from working-class families (Carnes and Sadin 2014).

⁵The surveys uncovered some evidence that voters view candidates with blue-collar occupations as more relatable, but these differences did not matter for vote choice and there were no effects for competence. It is worth noting that these experiments are fielded in contexts with strong partisan identities, which – in the context of a conjoint experiment – potentially mask the effect of candidate class (Kirkland and Coppock 2018).

⁶Carnes and Lupu (2016a) do not subset their analysis by respondents' class. Sadin (2014) finds that richer voters are more likely to view the rich as competent and empathetic, but the analysis of candidate wealth and vote choice does not subset respondents by class.

their qualifications for the office that they are contesting; likewise, the *stereotype* model expects that a candidate's class position will activate positive stereotypes about competence (or negative stereotypes about empathy) that are held by all voters (Sadin 2014). These inferences are invariant because voters from all classes have shared beliefs about what a given class cue signals.

However, voters might also make inferences based on the alignment between their class and a candidate's class. These interactive inferences are likely if class functions as a *social identity*. By this, I mean that voters might classify candidates according to social proximity, with the expectation that candidates who are more proximate are more like them.⁷ This could occur through either positive affect or a sense of linked fate. If voters view class like this, they might believe that politicians who look like them will act in their interest and will be more trustworthy (Rothstein and Uslaner 2005). This idea is consistent with theories of descriptive representation (Mansbridge 1999, Young 2002). If this is the case, voters will make inferences about candidates' distributive commitments – and the likelihood they will follow through on those commitments – based on the relative proximity between their class and a candidate's class.

Viewed alongside the earlier discussion, this suggests three distinct models for how a candidate's class functions as an electoral heuristic: a *qualification* model, in which class provides information about a candidate's competence; a *stereotype* model, in which class provides identical information about a candidate's competence, trustworthiness, and distributive commitments to all voters; and a *social identity* model, in which the social proximity between a voter and candidate provides information about a candidate's trustworthiness and distributive commitments. These models are outlined in Table 1.

Table 1: Three models of candidate class as an electoral heuristic

	<i>Overall evaluation</i>	<i>Trait evaluations</i>		
	Vote choice	Competence	Distributive commitments	Trust
<i>Qualification Model</i>	Upper-class advantage	Upper-class advantage	No advantage	No advantage
<i>Stereotype Model</i>	Cross-cutting advantages	Upper-class advantage	Shared-class advantage	Lower-class advantage
<i>Social Identity Model</i>	Shared-class advantage	No advantage	Shared-class advantage	Shared-class advantage

⁷I use the term *social identity* loosely to refer to voters' sense that candidates are more like them. In contrast to the *qualification* approach, which treats candidate class as an empirical and absolute concept, this treats candidate class as a subjective and relative concept. I return to this distinction later.

It is important to note that these models are not mutually exclusive. During elections, voters face cross-cutting pressures *within* and *across* these models. Furthermore, politicians from different classes have an incentive to emphasize different aspects of their class identity. That said, it is important to note that the distribution of cross-cutting pressures is asymmetric: lower-class voters will have to make more trade-offs than upper-class voters because – if any two of the models hold – lower-class voters have to choose between candidates that they view as competent and those that they believe will act in their interest. It is unclear which of these priorities will win out because voters have reasons to prefer representatives who resemble themselves (Mansbridge 2011; 2015), but they might be equally likely to support candidates they view as exceptionally talented (Manin 1997).⁸ As a result, shared class could have asymmetric effects: it might advantage upper-class candidates among upper-class voters, while having no effect among lower-class voters.

An additional complication is that voters from different classes might place different weights on these inferences. For instance, upper-class voters might only use class cues to infer a candidate's competence while lower-class voters use class cues to infer a candidate's distributive commitments or trustworthiness. These cross-cutting pressures and potential sources of cross-class heterogeneity suggest that class likely functions in a more complex and interactive way than acknowledged in previous work.

EMPIRICAL CONTEXT: BRAZIL

To test these models, I turn to Brazil's municipal elections. Municipalities are the smallest federal units in Brazil and are governed according to a strong mayor-council system, in which mayors and city councilors are elected simultaneously every four years. Local elections take place on off years for state and national elections.

From a research design perspective, Brazil is a useful context for studying electoral behavior because mayoral elections are generally contested under simple plurality rules and city council elections take place under open-list proportional representation rules.⁹ This makes it possible to test whether class operates in similar ways across different institutional and informational environments. Rich data availability also makes it possible to test both invariant and interactive theories of class as an electoral heuristic.

Brazil is also an important context for studying class as an electoral heuristic because the country has undergone radical decentralization reforms, but voters often have limited information about local candidates (Boas 2014, Aguilar et al. 2015a;b). Following decentralization in the 2000s,

⁸Rehfeld (2011, 9) suggests that voters might prefer candidates who are inferior to themselves in order to control them. This is a bad strategy for voters, but could work for elites or interest groups.

⁹Mayoral elections in cities with more than 200,000 inhabitants have run-off elections if no candidate wins a majority in the first round.

Brazilian municipalities have gained control over key social policy areas, including health care, education, and social assistance, which means that local politicians' actions have important distributional consequences. However, candidates' platforms tend to be indistinguishable (Johannessen 2020), and local party labels only matter at the local level insofar as they provide information about alliances in Brazil's complex federal system (Brollo and Nannicini 2012, Bueno 2018). These issues are exacerbated by high levels of party switching and the existence of ideologically incoherent coalitions, both of which contribute to candidate-centric elections at the local level in Brazil.

It is plausible that class might fill this void. Far from being a latent divide, social class is widely identified by citizens as Brazil's primary social cleavage. According to pooled data from Latinobarómetro surveys (2008-2010), nearly 80% of Brazilians perceive either *strong* or *very strong* conflict between the rich and poor, which is more than for other social cleavages, including race and gender.¹⁰ And class polarization has only increased in the 2010s, as the PT's anti-poverty programs created a backlash among wealthier Brazilians. Given the salience of class in Brazil and the absence of competing heuristics, it seems plausible that voters will prefer politicians who resemble themselves along this fundamental dimension.¹¹

Qualitative evidence provides support for this expectation. For instance, an ethnographic study of mayoral elections in Buritis, Minas Gerais identified two ideal types that voters used to describe candidates: "good person" (*boa pessoa*), and "good administrator" (*bom administrador*) (Chaves 1996). These ideal types were tied to a candidate's class, as seen in one vivid example where a voter noted that the lower-class mayoral candidate was not a good administrator, but was a "good politician" (*bom politico*) because he was a "man of the people, from poverty." For this reason, the voter preferred that candidate over his opponent, who was a better administrator, but "no longer from poverty" (Chaves 1996, 134).

Candidates also act as if their class position were electorally salient. Nearly all candidates emphasize their class background in promotional materials, albeit in different ways depending on their class position.¹²

For lower-class candidates, this takes two forms. First, lower-class candidates often use campaign pamphlets, flyers, and posters to stress their humble upbringing.¹³ For instance, a promotional pamphlet for Fátima Pereira (Fatinha) – a city-council candidate in Duque de Caxias, Rio de Janeiro – provided the following biography:

¹⁰Both were named by approximately 65% of respondents.

¹¹Even in the American context, where racial divides are more salient, voters are as likely to perceive *linked fate* between themselves and people who share their class as those who share their race (Gay et al. 2016).

¹²The following examples come from the United States Library of Congress's *Brazil's Popular Groups* archive, which collects documents from political organizations, including party publications and campaign ephemera. Here, I draw on more than a thousand candidate pamphlets collected from 1996 to 2012.

¹³Carnes and Sadin (2014) refer to this as the "mill worker's son" heuristic.

Adopted daughter of a stone mason's helper and a cleaner, Fátima Pereira (Fatinha) was born, grew up, and still lives in the neighborhood of Jardim Primavera in the periphery of Duque de Caxias. Raised in a situation of precariousness due to a lack of resources in the area, she has dreamed of creating a better life for her people since she was young (Brazil's Popular Groups: Political Parties and Issues (BPG) 2008b).¹⁴

In this biographical introduction, Fatinha emphasizes her humble upbringing and ties it to her long-standing political commitments. Furthermore, she establishes her continued commitment to the city's poor by mentioning that she still lives in the lower-class neighborhood where she grew up, which insulates her from the claim that she is no longer "from poverty."

Second, in other cases, candidates stress their current occupation. For instance, a campaign flyer for Marcelo de Carvalho da Silva – a city council candidate in Petrópolis, Rio de Janeiro – introduced the candidate as:

Marcelo de Carvalho da Silva, often called "Marcelo the Bus Driver" [*Marcelo Motorista*] has a distinguished life history and has become popular for his dedication, care, and respect for the population of Petrópolis. As a bus driver, Marcelo the Bus Driver always demonstrated his care with the neediest in his first term...[He] defended the working class, but gave emphasis to bus drivers, a group he was part of for 21 years (Brazil's Popular Groups: Political Parties and Issues (BPG) 2012a).

As with Fatinha's biography, Marcelo's biography stresses that his professional background shapes his political priorities. But in this case, Marcelo's biography mentions an even narrower form of descriptive representation: his experience as a bus driver motivated him to prioritize bus drivers' interests as a city councilor. In fact, his occupation is such a central component of his political identity that he uses it as his ballot name.¹⁵ Similar examples of both strategies are common among other candidates.¹⁶

Upper-class candidates also emphasize class in their advertisements, but consistent with the *qualification* model, they do so to demonstrate that they will be a good administrator (*bom administrador*) rather than a good person (*boa pessoa*). Specifically, upper-class candidates' pamphlets foreground educational and occupational accomplishments to establish their competence (Scotto 1996). The only candidates who do not emphasize their educational or occupational histories are current officeholders and dynastic politicians, who emphasize past accomplishments and familial connections.

¹⁴All translations by author.

¹⁵Candidates choose how their name appears on the ballot. Marcelo the Bus Driver lost his 2016 reelection bid to The Watchmaker, Smiling Luizinho, Marcelo Pro-Disabilities, and Silmar Fortes for Health Care.

¹⁶See Appendix A for additional examples.

In these examples, and others I reviewed, class is a thick heuristic. Candidates provide information about their family histories, occupational trajectories, educational attainment, and current neighborhood. And while some candidates stress blue-collar jobs that they held for a short period of time (often during college), these examples suggest that there are bounds to the extent to which candidates can manipulate their perceived class. The most common strategy for candidates is to lean into their class status in a way that appeals to as many voters as possible.

ANALYSIS

These examples illustrate the electoral salience of class in Brazil's local elections and provide suggestive evidence of mechanisms, but it is unclear whether this regularly translates into electoral behavior: Does candidate class matter for vote choice? And if so, how?

I answer these questions in three steps: First, I use electoral returns from mayoral and city council races (2004–2016) to estimate whether a candidate's class matters for aggregate electoral performance. Then, using an original measure of candidates' class support, I estimate whether candidates receive more support from voters who are closer to their class position. And finally, I reanalyze data from a survey experiment fielded by Bueno and Dunning (2017b) to gain insight into the mechanisms underlying these effects.

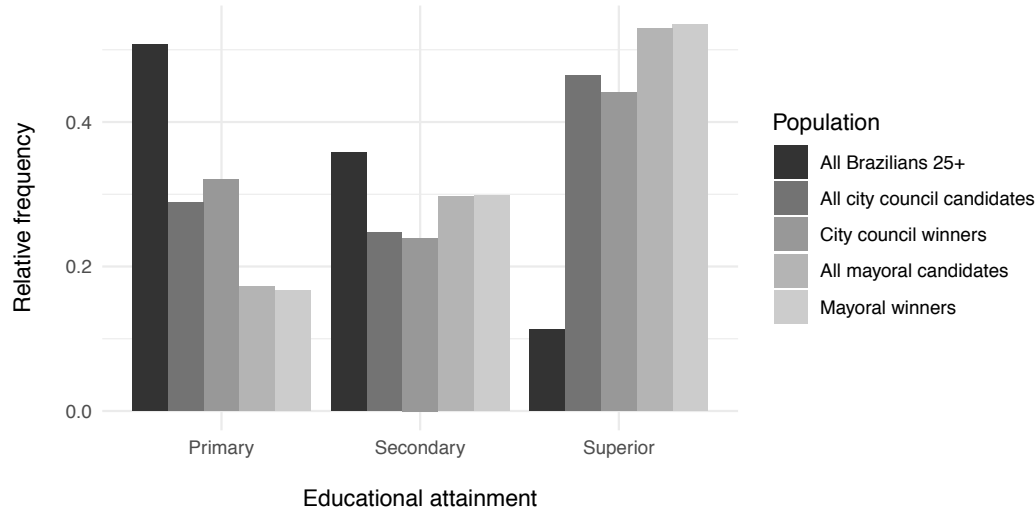
Is there an aggregate effect of candidate class on electoral performance?

To start, are voters more likely to elect upper-class or lower-class candidates? Only the *qualification* model expects that upper-class candidates will have an overall advantage – particularly if they have some job-specific qualification. The *stereotype* model provides no prediction because class will send potentially cross-cutting information about a candidate's competence, trustworthiness, and distributive commitments; and the *social identity* model provides no prediction because it expects that the main effect of class will be interactive.¹⁷

Descriptive statistics provide mixed evidence. As seen in Figure 1, there are relatively few lower-class citizens in elected office, but among candidates, there are no consistent class differences between winners and losers. For this reason, it seems as if political ambition – rather than voters' preferences – are driving the results. In the rest of the analysis, I test whether these patterns are robust to a range of different modeling strategies.

¹⁷The predictions of the *social identity* model depend on how voters differentiate between candidates' class and the composition of voters in a given municipality. Throughout, I assume that class is *relative*: a candidate does not have to share a voter's class position, but need to be more proximate than other candidates.

Figure 1: Relationship between educational attainment, running for office, and electoral success



Mayoral elections

To control for variables that might confound the relationship between candidate class and electoral performance, I employ a matched-pair design that restricts the sample to elections in which the top-two candidates are similar in all observable respects except for their class. These candidate pairs are the unit of analysis.

This approach solves two inferential challenges: first, this matching approach reduces model dependence and allows for a quasi-experimental comparison. In contrast to Brazil's legislative elections, in which voters select multiple candidates out of a large pool of candidates, Brazil's mayoral races take place under simple plurality rules in most municipalities. Consistent with Duverger's Law, these races are typically contested by only two viable candidates (Fujiwara 2011), which makes it possible to explicitly model electoral behavior as a binary choice between otherwise similar candidates. And second, the approach controls for all city-level confounders (by using candidate pairs *within* municipalities as the unit of observation).

I use two different measures of candidate class in the analysis: first, I use educational attainment, which I code as a trichotomous variable that corresponds to the highest level of schooling that a candidate has achieved (*primary*, *secondary*, or *post-secondary*). And second, I use occupational status, which I code using candidates' self-declared occupation in their electoral registration. For ease of interpretation, I reclassify candidates' occupations as: *business owner*; *white-collar professional*; *blue-collar worker*; *public employee*; and *other*.¹⁸ The use of two different measures of class helps ensure the robustness of results, while also allowing for categorical variation in effects across occupational categories.

¹⁸See Carnes and Lupu (2015) for a detailed defense of occupational categories as a measure of class.

Candidates are matched across several dimensions. First, the sample is restricted to all races with two viable candidates and no incumbents.¹⁹ Then, it is further restricted to elections where candidates are coarsely matched by gender, age, prior political experience, campaign spending, and birth state.²⁰ Mayoral candidates cannot be matched by party, so I control for party reputations by excluding candidates from parties that received less than 40% or more than 60% of the vote in mayoral races they contested. In the strictest form of matching, I also exclude candidates from the PT, which is the main partisan force in Brazil (Samuels and Zucco 2018).

After pruning the sample to matched-candidate pairs, I estimate whether upper-class candidates do better than lower-class candidates using simple hypotheses tests. The null hypothesis is that – after matching candidates on observable candidate attributes – we should see no difference in the performance of candidates from different classes. In the main analysis, I use two-candidate vote margin to measure electoral performance.²¹

The results (Figure 2) suggest that we cannot reject the null hypothesis that there are no differences in the electoral performance of mayors from different classes. In terms of education, there is no meaningful difference in the average vote margin of candidates from different classes; and in terms of occupation, candidates from business, white-collar, and blue-collar occupations receive similar levels of support. There is some evidence that public-sector workers have an electoral advantage, but this effect (approximately one percent of the vote) is neither substantively nor statistically significant. These estimates are consistent across a wide range of different matching thresholds, with stricter thresholds naturally leading to noisier estimates.

Theoretically, the results from the matched-pair analysis are inconsistent with the *qualification* model, which suggests that upper-class candidates should have an electoral advantage over lower-class candidates. There is also no evidence that lower-class candidates benefit from perceptions of being more empathetic or trustworthy, as expected by the *stereotype* model.

City council elections

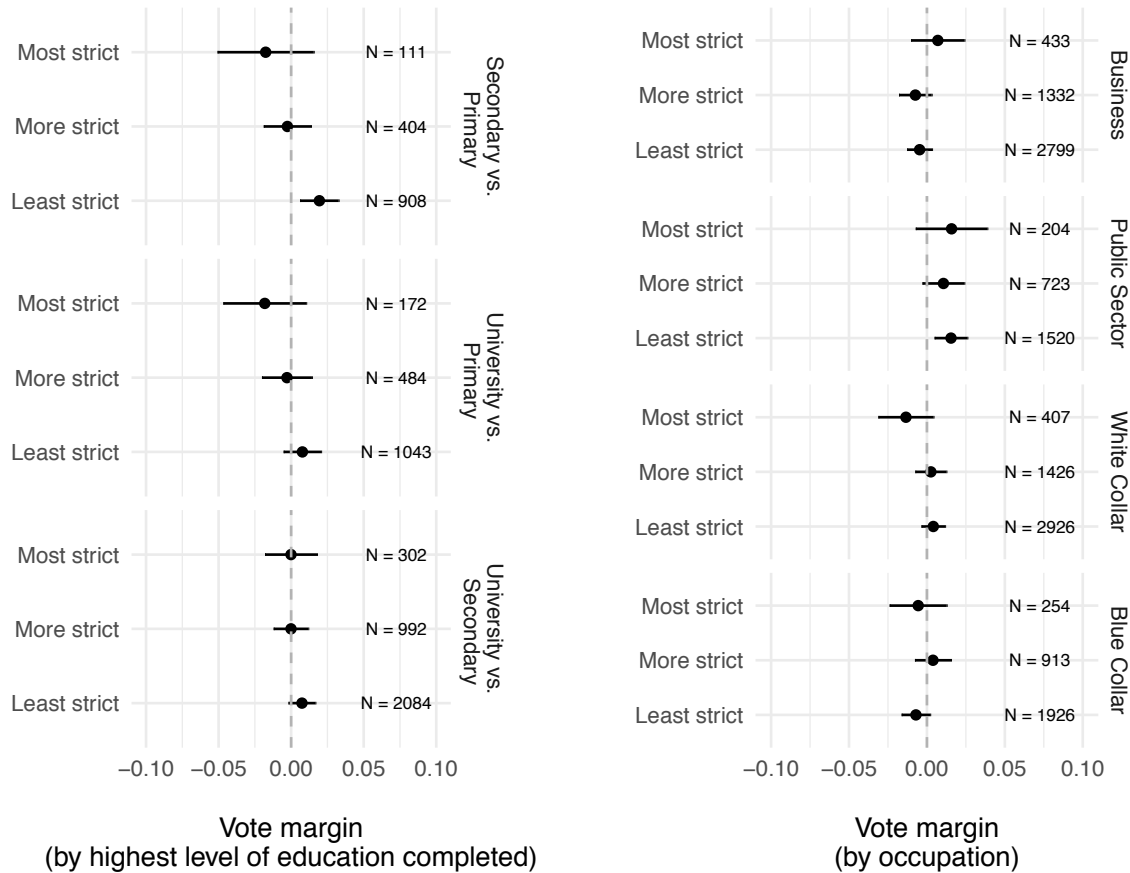
The matching strategy used in the mayoral analysis is an intuitive control strategy, but these estimates might be misleading. One concern is that the matching approach makes it difficult to control for partisanship, which might confound the relationship between a candidate's class and electoral performance. Alternately, mayoral elections might not actually be low-information elections because they only feature two candidates and take place on off-cycle years: the limited number of

¹⁹I define elections with two viable candidates as races in which the top two candidates received more than 80% of the vote. This includes more than 85% of Brazil's mayoral races. Elections with incumbents are excluded because they have unique dynamics (Lavareda and Telles 2016).

²⁰All measures of candidate attributes come from Brazil's Electoral Court (TSE).

²¹The estimates are similar when using a dichotomous indicator for whether a candidate won an election. I present the results for two-candidate vote margin because the binary indicator disregards useful information and leads to noisier estimates. I use t-tests for vote margin and binomial tests for win probability.

Figure 2: Effect of candidate class on overall electoral performance by strictness of matching



Note: In both sets of models, *most strict* specifications match candidates on campaign spending (<30% difference), gender, age (<15-year gap), incumbency status (for any office), partisan strength, prior experience in office, and home state; *more strict* specifications match candidates on campaign spending (<40% difference), gender, age (<20-year gap), incumbency status (for any office), and partisan strength; *least strict* specifications match candidates on gender, age (<25-year gap), and incumbency status (for any office). Estimates include 95% confidence intervals.

candidates means that voters can invest time in information acquisition, and the fact that elections take place on off-cycle years means that voters are not distracted by campaigns for higher offices. And finally, selection bias might be at play in mayoral elections: by virtue of overcoming a financial disadvantage, lower-class candidates might be higher quality along some unobservable dimension than upper-class candidates.

I address these concerns with the analysis of city council elections. Because city council elections take place under open-list proportional rules, it is possible to make within-party comparisons. And due to the high number of candidates in city council races, they are clearly low-information elections (Aguilar et al. 2015b, Boas 2014). Furthermore, there are few barriers to candidate entry

in city council elections, which reduces concerns about selection bias.²² These characteristics of city council elections make the analysis a useful robustness check on the matched-pair analysis.

I model the association between candidate class and vote choice in city council races by regressing candidate class on vote share. I include controls for a candidate's age, birth state, previous political experience, gender, marital status, incumbency status, and levels of campaign spending.²³ I also include interactive party-city-year fixed effects to control for differences in city-specific partisan reputations that might be correlated with candidate class; and I include fixed effects for ballot numbers to capture any electoral advantage conferred to candidates with numbers that are easier to remember. This also has the effect of controlling for unobservable judgments about candidate quality made by local party officials who assign the numbers (see Bueno and Dunning 2017a). Empirically, the identifying variation in each model comes from differences between candidates in the same year, municipality, and party list – holding constant any advantage conferred by a candidate's ballot number.

Table 2 presents estimates for models with and without candidate-level controls. The results provide some evidence for the *qualification* model, but viewed alongside the results from the mayoral analysis, the evidence is weak. Substantively, more-educated candidates receive a tenth of a percentage point more than less-educated candidates; and candidates from business and white-collar occupations receive approximately a tenth of a percentage point more than those from blue-collar backgrounds. The large sample size means that these estimates are statistically significant, but they are small. As a point of reference, most elected city councilors receive at least four percent of the total vote.

It is also worth noting that there is a clear attenuation of effect sizes when moving from specifications *without* individual-level controls to those *with* individual-level controls. This suggests that the under-representation of working-class candidates is partially explained by individual-level characteristics that are correlated with candidate class, such as financial resources. All estimates are robust to alternate specifications, including controls for a candidate's self-declared race.²⁴

Does shared class matter?

The preceding analysis suggests that a candidate's class has a negligible effect on overall electoral performance, but the earlier theoretical discussion suggested that these null effects might mask

²²There are typically more than eight candidates contesting each city council seat in Brazil and city council candidates are twice as likely to have only finished primary school.

²³Age and campaign spending are modeled with cubic polynomials to allow for non-linear relationships. All other variables are dummy variables.

²⁴These are not included in the main analysis because candidates were only asked to identify their race in local elections starting in 2016, which excludes 75% of the observations.

Table 2: Association between a candidate's class and the percentage of valid votes received in city council races (2004-2016)

	Model 1	Model 2	Model 3	Model 4
Secondary (vs. Primary)	0.135*** (0.005)	0.066*** (0.005)		
College (vs. Primary)	0.212*** (0.005)	0.108*** (0.005)		
Business (vs. Blue-Collar)			0.226*** (0.004)	0.084*** (0.004)
White-Collar (vs. Blue-Collar)			0.185*** (0.004)	0.123*** (0.005)
Public-Sector (vs. Blue-Collar)			0.120*** (0.005)	0.086*** (0.005)
Party-city-year FEs	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Candidate number FEs	<i>No</i>	<i>Yes</i>	<i>No</i>	<i>Yes</i>
Candidate-level controls	<i>No</i>	<i>Yes</i>	<i>No</i>	<i>Yes</i>
N	743,203	590,786	938,245	759,730
R-squared	0.603	0.734	0.579	0.719
Adj. R-squared	0.444	0.594	0.444	0.603
Residual Std. Error	1.274	1.147	1.275	1.132
Degrees of Freedom	531,297	386,899	710131	537,331

*** p < .01; ** p < .05; * p < .1

Note: Candidate-level controls include a candidate's age (cubic), share of campaign spending (cubic), gender, place of birth, marital status, political experience, and incumbency status. The dependent variable is measured in percentage points.

heterogeneity in levels of support across classes. Here, I consider whether a candidate's class shapes *from whom* they receive support.

Again, different models of class provide different predictions: the *qualification* model predicts that there will be few differences in candidate support among voters from different classes; the *stereotype* model makes no clear predictions because class has cross-cutting advantages; and the *social identity* model predicts that there will be a strong association between a candidate's class and the class of his or her supporters.

Measuring class voting in Brazilian mayoral elections

The main impediment to studying the effect of shared class is data availability. It is necessary to have data that is fine-grained enough to capture variation in vote share across voters *within* a given municipality, as well as broad enough to map variation in class voting *across* municipalities.

The analysis here employs an ecological measure of local class voting that I constructed using precinct-level information about voters' educational attainment and vote choice.²⁵ For each precinct, I collected data on the educational attainment of registered voters and candidates' vote totals, which I used to create a binary indicator that captures whether a candidate received disproportionate support from low-education or high-education precincts in a given municipality.²⁶

To create the binary indicator, I started by calculating a candidate's average vote share in low-education and high-education precincts, where low-education precincts are defined as precincts in which voters are: (1) below the local median in terms of average years of formal education; (2) above the local median in terms of voters with less than a secondary school education; and (3) below the median in terms of the share of voters who completed secondary school. High-education precincts are those in which the reverse is true for all three measures.

Candidates are classified as having a disproportionately lower-class (or upper-class) support base if they: (1) outperformed their municipal-level support in low-education precincts; and (2) under-performed in high-education precincts (or vice versa). Because secular trends in educational attainment in Brazil mean that younger respondents are – on average – more-educated, I use age-adjusted measures when creating these classifications.²⁷ This means that precincts are classified as high-education or low-education relative to what one would expect given their age distribution.

While innovative, this measure raises two concerns. First, the reliance on educational attainment as a measure of class could be problematic if education does not correspond to other commonly used measures of class. This concern is allayed by the strong relationship between educational attainment and other measures of class in Brazil, such as wealth and income, which suggests that educational attainment is a reasonable proxy for class more broadly.²⁸

A second concern is that the measure is constructed using ecological data, rather than individual-level data. This is a problem because ecological associations only reflect individual-level associations when group members behave identically across units (Goodman 1959), but geographic sorting

²⁵Precincts are formally referred to as electoral sections (*seções eleitorais*). They are the smallest electoral unit in Brazil, with approximately 300 voters in each precinct. Educational attainment is measured as of the last time an individual updated their electoral registration, and data is unavailable for very small precincts due to concerns about clientelist monitoring. All data comes from the Tribunal Superior Eleitoral (TSE).

²⁶For instance, a candidate who receives 43% of the vote in low-education precincts, and 40% of the vote overall would be classified as having a low-education support base, even though she still received less support from low-education precincts than her opponent. I use this binary indicator instead of a continuous measure because the size of the gap is jointly determined by the geographic distribution of voters across precincts and the extent to which a candidate receives disproportionate support.

²⁷For each age group within a precinct, I center the average educational attainment in relation to the educational attainment for that age group within the municipality.

²⁸Appendix E provides additional support for this contention.

tends to be non-random: people who live in certain areas tend to differ, independent of their class status.²⁹

To assess whether the ecological estimates reflect meaningful individual-level variation, I calculated an individual-level measure of class voting using a database of more than 250 mayoral election surveys. The two measures overlap for 75% of the races surveyed during the 2004 and 2008 campaigns, which suggests that even though the measure is noisy, it captures meaningful variation in class voting.³⁰ Thus, a cautious interpretation of the following analysis is that it tests whether a candidate received disproportionate support from precincts with more- (or less-) educated voters, but the consistency across ecological and individual-level approaches suggests that an individual-level interpretation is also reasonable.

Mayoral elections

With this measure of class voting, I start by testing whether candidates receive more support from precincts that are closer to their class position. The analysis employs the same matched candidate-pair design as before, but with a new dependent variable: whether a candidate receives disproportionate support from high-education precincts.³¹ The null hypothesis is that candidates from different classes are equally likely to receive support from high-education precincts.³²

The results (Figure 3) provide fairly strong evidence for an interactive effect of class on vote choice. When white-collar candidates run against blue-collar candidates, they draw disproportionate support from more-educated precincts more than 60% of the time. Across specifications, business owners draw support from more-educated voters 55% of the time when running against blue-collar candidates, but this estimate only reaches statistical significance in the least strict specification. In terms of education, the main divide seems to be between candidates who have completed some university and those with less education. When running against candidates with a primary school education, university-educated candidates draw disproportionate support from more-educated precincts approximately 65% of the time. This drops to 55% when running against candidates with a secondary education. Notably, voters do not appear to distinguish between candidates who have finished primary and secondary school, which suggests that college is the clear dividing line in Brazil. This is consistent with the occupational results, in which the white collar vs. blue collar division is the most salient divide.

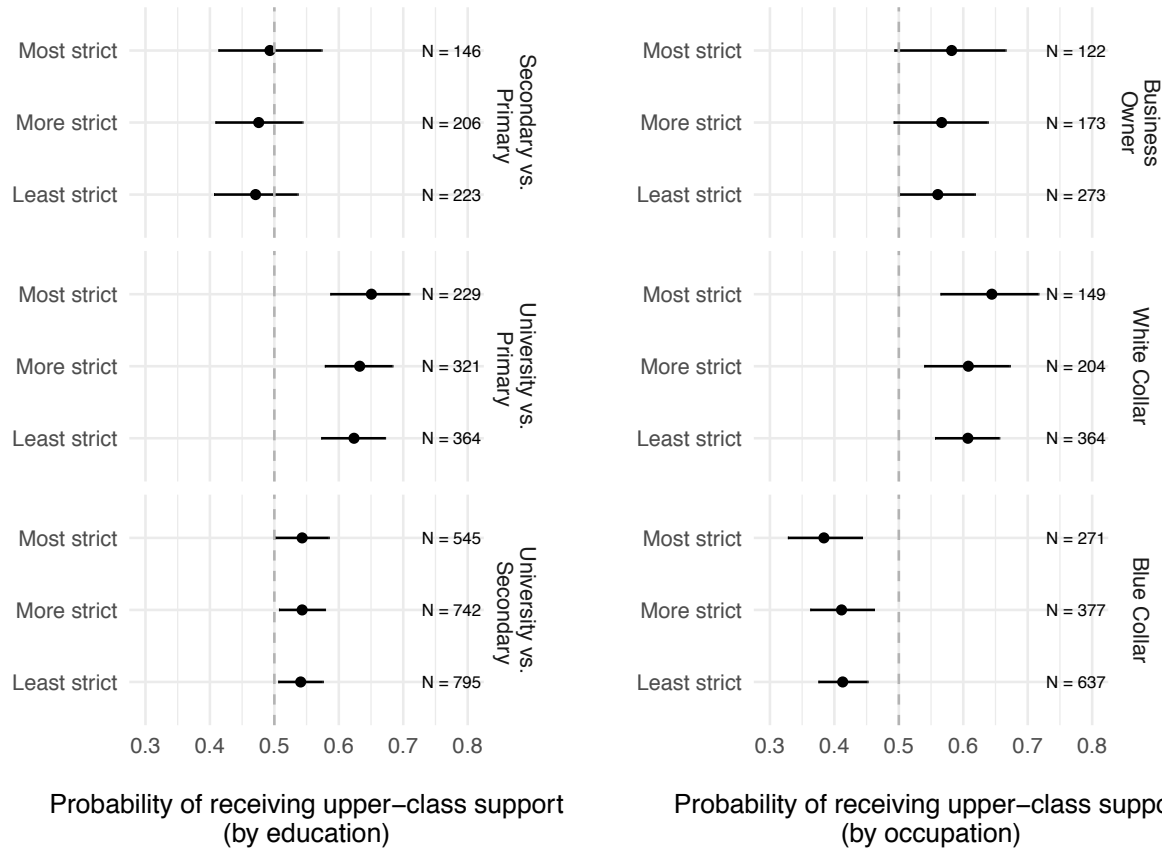
²⁹Voters are randomly assigned to polling stations in Brazil, but these polling stations are aggregated into geographically constrained precincts.

³⁰See Appendix C for additional details.

³¹I include vote margin as a control variable because lower-class voters might be disproportionately likely to support successful candidates in order to access state resources after an election.

³²It is important to note that the occupational comparison is slightly different here. I exclude public-sector workers because they do not fall neatly within either class.

Figure 3: Probability that upper-class candidates receive more support from high-education voters



Note: In both sets of models, *most strict* specifications match candidates on gender, age (<20-year gap), incumbency status (for any office), partisan strength, prior experience in office, and home state; *more strict* specifications match candidates on gender, age (<25-year gap), incumbency status (for any office), and prior experience in office; *least strict* specifications match candidates on gender, incumbency status (for any office), and prior experience in office. Estimates include 95% binomial confidence intervals. All models are restricted to municipalities with at least ten electoral precincts to ensure that the measures of class voting are relatively reliable.

These patterns are consistent with either the *social identity* model or the *stereotype* model: across both measures of class, candidates receive more support from voters who are closer to their class position.

City council elections

As a robustness check, I turn to data from city council elections. I adopt the same modeling strategy as before, so the identifying variation comes from variation in the performance of candidates in the same year, municipality, and party – holding constant any advantage conferred by a candidate’s ballot number.

Consistent with the mayoral results, city council candidates are more likely to receive support from voters who share their class (Table 3). Candidates who complete at least some college are fifteen percentage points more likely to receive support from high-education precincts than candidates who only complete primary school; candidates who complete secondary school are nearly seven percentage points more likely to receive support from high-education precincts than candidates who only complete primary school; and candidates who complete at least some college are approximately nine percentage points more likely to receive support from high-education precincts than candidates who only complete secondary school.

Table 3: Association between a candidate's class and the probability of receiving more support from high-education precincts (2004-2016)

	Model 1	Model 2	Model 3	Model 4
Secondary (vs. Primary)	0.063*** (0.002)	0.067*** (0.002)		
Post-secondary (vs. Primary)	0.151*** (0.002)	0.155*** (0.002)		
Business (vs. Blue-Collar)			0.099*** (0.002)	0.092*** (0.002)
White-Collar (vs. Blue-Collar)			0.200*** (0.002)	0.188*** (0.002)
Public-Sector (vs. Blue-Collar)			0.138*** (0.002)	0.129*** (0.002)
Party-city-year FEs	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>	<i>Yes</i>
Candidate number FEs	<i>No</i>	<i>Yes</i>	<i>No</i>	<i>Yes</i>
Candidate-level controls	<i>No</i>	<i>Yes</i>	<i>No</i>	<i>Yes</i>
N	726,147	582,160	916,279	748,066
R-squared	0.336	0.396	0.296	0.348
Adj. R-squared	0.069	0.077	0.068	0.077
Residual Std. Error	0.481	0.480	0.478	0.476
Degrees of Freedom	517692	380610	691753	528203

***p < .01; **p < .05; *p < .1

Note: Candidate-level controls include a candidate's age (cubic), share of campaign spending (cubic), gender, place of birth, marital status, political experience, incumbency status, and total vote share.

Similar patterns exist for occupation: candidates from white-collar professions and business are all more likely to receive support from high-education precincts than candidates from blue-collar backgrounds. Interestingly, candidates from public-sector backgrounds are also likely to receive more support.³³ These effect sizes range from nine percentage points (for business) to nineteen percentage points (for white-collar professions).

³³Unlike in the matched-pair analysis, the inclusion of candidates with public-sector backgrounds does not bias the estimates for the main upper class-lower class comparison.

Discussion

Viewed together, the mayoral and city council results are consistent with the *social identity* and *stereotype* models of class as an electoral heuristic, not the *qualification* model. Candidates from different classes perform the same (after controlling for candidate traits and resources associated with class), but voters prefer candidates who are closer to their class position.

These findings are robust to alternate model specifications, but have several limitations that cannot be addressed with observational evidence. First, a correlation between unobserved candidate characteristics and candidate class could be driving the results: lower-class candidates might also employ pro-poor appeals or be known personally by voters as pro-poor candidates. If this were the case, it would be difficult to determine whether a candidate's class – in and of itself – was decisive. And even if class *is* the decisive factor, it remains unclear *why*. The earlier theoretical discussion suggested that voters will face trade-offs between considerations about competence, distributive commitments, and trustworthiness – and given that candidates use class in different ways, it seems likely that voters from different classes will also weight these considerations differently.

What do voters infer from a candidate's class? Experimental evidence

To address these concerns, I turn to data from a survey experiment conducted by Bueno and Dunning (2017b), in which the investigators screened videos of speeches made by fictional city council candidates in Rio de Janeiro and Salvador, and then asked respondents to evaluate the candidates (N = 610). There were two primary manipulations in the experiment: (1) race was randomized by filming actors with different skin colors; and (2) class was randomized by having the same actor wear different clothing (a suit versus informal street clothes).³⁴ In their published analysis, Bueno and Dunning (2017a) focus on the racial manipulation. Here, I use the same raw data to explore the effect of candidate class.³⁵

Experimental data complements the earlier observational analysis in two ways: (1) it controls for unobservable variables that might have confounded the observational analysis; and (2) the survey instrument includes a series of questions about respondents' candidate evaluations, which makes it possible to gain insight into the mechanisms underlying citizens' actions. And while there are several reasons to be cautious interpreting the results – such as the experiment's small sample size, reliance on a convenience sample in two large cities, and artificial set-up – the data provides an important robustness check on the observational analysis and allows for an initial exploration of the mechanisms through which shared class matters for vote choice.

³⁴In each city, the researchers fielded the survey using a stratified probability sample in which they oversampled upper-class blacks and poor whites (to have a sufficient sample size for sub-group analyses). Full details of the study can be found in Bueno and Dunning (2017a).

³⁵I measure voters' class using the authors' indicator, which classifies respondents based on self-reported income.

Hypotheses

In the analysis, I focus on the effect of candidate class on the three types of candidate traits identified earlier: competence, trustworthiness, and distributive commitments.³⁶

For *competence*, the *stereotype* and *qualification* models both expect that upper-class and lower-class respondents will view upper-class candidates as more competent; and the *social identity* model makes no clear prediction.³⁷ For *trustworthiness*, the *social identity* model suggests that voters will view candidates who share their class as more trustworthy; the *stereotype* model suggests that all voters will view lower-class candidates as more trustworthy; and the *qualification* model makes no prediction.³⁸ And for *distributive commitments*, the *social identity* and *stereotype* models both expect that shared class will indicate shared distributive commitments.³⁹ The *qualification* model makes no predictions about perceptions of trust or distributive commitments.

Results

The results (Figure 4) indicate that a candidate's class provides a complex set of signals to voters. For lower-class respondents, shared class has a directionally positive effect on perceptions of a candidate's trustworthiness and some measures of distributive commitments, but a neutral – if not negative – effect on perceptions of overall competence. In contrast, for upper-class respondents, shared class has a positive effect on perceptions of a candidate's competence, some measures of distributive commitments, and trustworthiness.⁴⁰ Not all estimates are statistically significant at conventional levels, so they are best viewed as preliminary, but they are largely consistent with the expectation that voters from different classes respond in distinct ways to class cues.⁴¹

Theoretically, a mix of models provides the best explanation for the observed patterns. Upper-class voters seem to treat shared class as an indicator of whether a candidate is intelligent and competent, but lower-class voters believe all candidates are equally intelligent and competent. All respondents seem to expect that candidates who share their class are more likely to help people

³⁶ Respondents were presented a series of statements and asked to rate their agreement on either a 1-7 or 1-4 scale, depending on the question. I re-scaled responses between 0 and 1 to facilitate comparability across measures.

³⁷ I measure perceptions of competence with respondents' evaluations of three statements: the candidate is intelligent; the candidate is competent; and the candidate is capable of overcoming challenges.

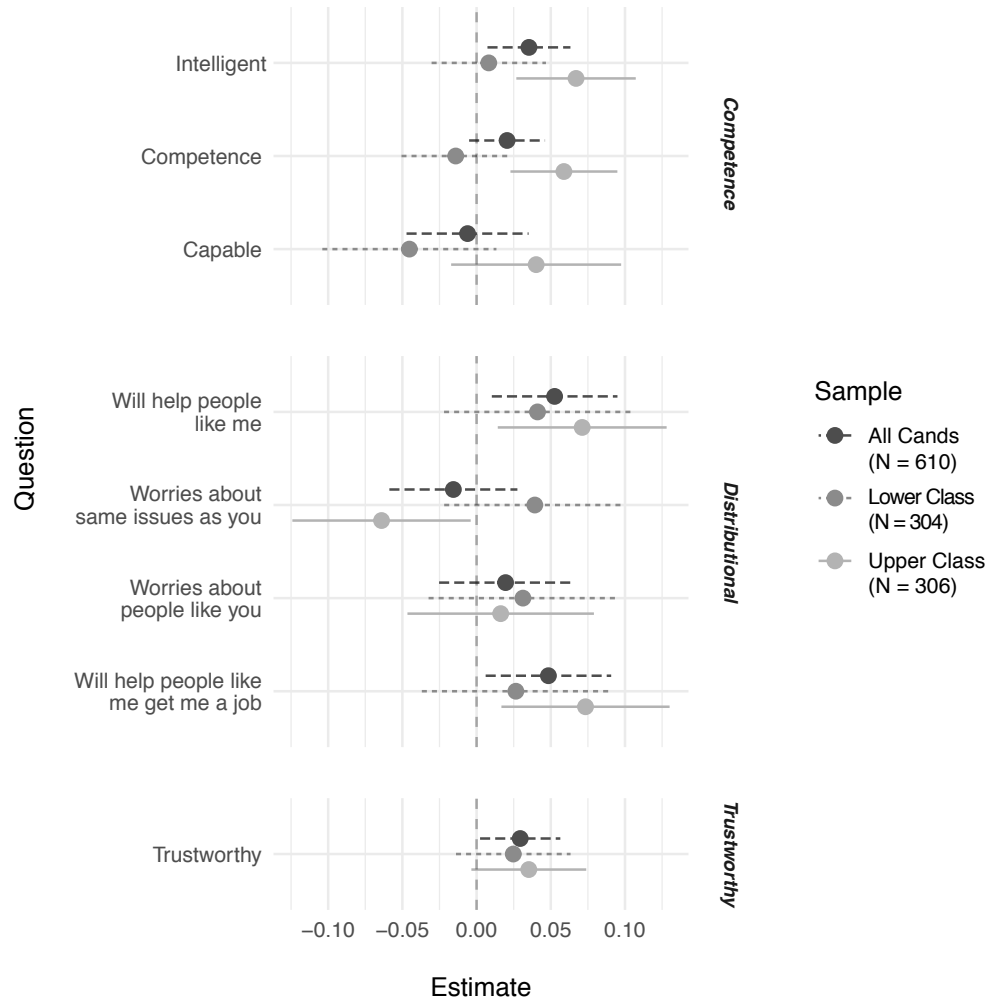
³⁸ I measure perceptions of trustworthiness with respondents' evaluations of a single statement: the candidate is trustworthy.

³⁹ I measure distributive commitments with respondents' evaluations of four statements: the candidate cares about people like you; the candidate cares about the same issues as you; if the candidate is elected, people like you would be more likely to receive government benefits; if the candidate is elected, people like you would be more likely to have a job.

⁴⁰ I present OLS estimates of the difference-in-means across treatment and control groups. Due to sample size considerations, I pool candidates across racial and campaign-appeal treatment groups.

⁴¹ Due to the small sample size, "conventional levels" refers to $p < 0.1$. I present the intent-to-treat (ITT) effect here, which is the difference in responses across those assigned to treatment and control conditions. It does not consider whether the treatment actually shifted respondents' evaluation of the candidate's class.

Figure 4: Effect of shared class (vs. different class) on vote choice and candidate evaluations



Dependent variables are scaled from 0 to 1. All estimates are from OLS models with 90% confidence intervals. Responses are pooled across racial treatments.

like them, with weaker evidence that they also view candidates who share their class as more likely to worry about people like them and help people like them get a job.⁴² Both upper-class and lower-class respondents seem to believe candidates who share their class are more trustworthy, although this estimate is only statistically significant for the pooled sample.⁴³ Interestingly, even though upper-class respondents believe that upper-class politicians are more likely to help people like them and will help them get a job, they view them as less likely to worry about the same issues. These patterns are broadly consistent with the qualitative evidence presented earlier. In terms of

⁴²Of these, the first and third are statistically significant, largely due to the effect sizes for lower-class voters.

⁴³There is some evidence that lower-class voters also believe that the shared-class candidate is likely to worry about the same issues as them, but the opposite is true for upper-class voters.

the direction of effects, lower-class voters seem to use class to learn whether a candidate is a “good person,” but upper-class voters also use a candidate’s class to infer whether he or she will be a “good administrator.”

Still, it is important to be cautious in interpreting these estimates. One concern is that the nature of the manipulation might explain the differential effects for competence, trustworthiness, and distributive commitments. The experimental intervention manipulates class by having the fictional candidate wear a suit rather than street clothes, which is problematic because the suit might directly signal competence and intelligence to respondents rather than indirectly doing so by shifting respondents’ perceptions of the candidate’s class. Alternately, the subtle nature of the intervention might understate the effect of class on voters’ attitudes and behavior by directly changing respondents’ perceptions of the candidate’s class.⁴⁴ And while I recover similar effects using an instrumental variables approach to estimate the complier average causal effect (CACE),⁴⁵ these estimates are even less precise.⁴⁶

An additional concern is that these effects might understate (or misstate) the importance of class as a heuristic because candidates can use their class background to bolster the credibility of positional claims – as seen in the earlier examples of Fatinha and Marcelo the Bus Driver. Even if class has a small direct effect, it might allow for the use of appeals that shift voters’ evaluations. A secondary treatment arm in the experiment conducted by Bueno and Dunning (2017a) varied candidates’ appeals so they were consistent with their class and racial status, but explicit class appeals do not make a clear difference here.

A final concern is that the binary treatment (shared class vs. non-shared class) means that there is no true control group. This is a problem because it is difficult to assess whether effects are primarily driven by assessments of the upper- or lower-class candidate. In all of the analyses presented here, class is a relative concept, so it is difficult to disentangle whether effects are driven by affinity with an in-group candidate or by negative affect towards out-group candidates.

CONCLUSIONS AND OUTSTANDING QUESTIONS

Contrary to recent work suggesting that a candidate’s class has limited electoral salience (Carnes and Lupu 2016a), this paper demonstrates that candidate class matters for vote choice in Brazil’s local elections. This effect primarily works through *shared class*: voters prefer both mayoral and city council candidates who are closer to their class position. Experimental results and qualitative examples provide suggestive evidence that the mechanisms underlying these observational patterns

⁴⁴There is some evidence for this later point. Perceptions of the candidate’s class were only shifted 0.38 on a 1-5 scale.

⁴⁵This isolates the effect of the treatment among those whose perceptions of the candidate’s class was affected by the treatment (Angrist et al. 1996).

⁴⁶Results are included in Appendix D.

vary by class: there is evidence that all voters use class to infer a candidate's distributive commitments and trustworthiness, but upper-class voters also use class to infer a candidate's overall competence. These results are most consistent with a *social identity* model of class, but *stereotype* and *qualification* models also provide some explanatory power – particularly for upper-class voters.

These results could be extended in several directions. First, given the null results found in other contexts, it is important to identify the conditions under which class operates as an electoral heuristic. The analysis here is motivated by the assumption that shared class is particularly salient in low-information environments, where other sources of information – such as party labels, political platforms, and past performance – are absent or uninformative. But in practice, the importance of shared class as an electoral heuristic might be a function of the salience of class conflict as much as the absence of competing heuristics. If this is the case, class cues might be more salient when elections have higher distributive stakes – even in high-information environments.

Future work should also further unpack the concept of class. The operationalization of class used here was constrained by data availability. And while results are consistent across different operationalizations, it is unclear which aspect of class is doing the work. This is a concern because education, income, and occupation are not always as closely intertwined as in Brazil. Different class indicators could potentially send different signals to voters in other contexts.

There are also unanswered questions about the extent to which candidates can manipulate citizens' perceptions of their class. The existence of a clear association between a candidate's class and their supporters' class suggests that there are limits to a candidate's ability to manipulate perceptions of class, but the experimental results suggest that simple decisions about clothing can change voters' perceptions – at least in the absence of other information sources. Exploring the ways in which candidates present their class to voters is important because the recent methodological turn towards text-based conjoint experiments means that class is typically manipulated as a fixed trait that can be signaled through objective status. This is a problem because class might have more subtle manifestations, such as a candidate's accent or appearance. If class shapes vote choice through a *social identity* pathway, these informal class cues might be more important in signaling group membership than formal class signifiers.

And finally, more work should explore the substantive consequences of descriptive representation. There is some evidence that descriptive representation matters in national legislatures (Carnes and Lupu 2015, Boas and Smith 2019), but this merits further research at the local level, where previous work has largely found null effects (Carnes and Lupu 2016b, Johannessen 2017).

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A ADDITIONAL EXAMPLES OF BIOGRAPHICAL APPEALS

The article noted that candidates often use their class backgrounds to appeal to voters. This appendix provides examples of similar appeals. These all come from the Library of Congress's *Brazil's Popular Groups* archive.

- Carlos Soares, mayoral candidate in Goiânia, Goiás (PT):

The life of Carlos Soares was always guided by work and simplicity. Born in the town of Buriti Alegre and living in Goiânia by choice since 1980, proud son of small rural farmers – with whom he learned to read on the farm and live in a simple manner – Carlos Soares came to the capital for high school...Carlos Soares also saw the necessity of working. He started selling fruits and vegetables in the university neighborhood, which later was transformed into a small supermarket, from which he earned his living for many years (Brazil's Popular Groups: Political Parties and Issues (BPG) 2012d).

- Iara Falcão, city council candidate in Itaguaí, Rio de Janeiro (PDT):

[I was the] daughter of a stone mason and a maid, I studied at and graduated from public school, and I married a DJ, known for parties like “New Wave” and “Beer Time.”...I will defend and represent informal workers, traveling salesmen, and motorcycle deliverymen. I started to find my financial independence at age 16 as an informal traveling saleswoman and I know what informal workers deal with every day to bring home bread every day (Brazil's Popular Groups: Political Parties and Issues (BPG) 2012e).

- Sidney Oliveira, city council candidate in São Paulo, São Paulo (PV):

I had a poor upbringing, like many Brazilians, surrounded by difficulties, without access to education or health care. I started to work at a young age. I worked at the desk of a pharmacy, where I experienced the struggle of people who, like me, worked a lot to achieve a dignified and honest life...That is my promise as a city councilor: to fight, with seriousness and honesty, for better life conditions (Brazil's Popular Groups: Political Parties and Issues (BPG) 2012b).

- José Richard, city council candidate in Rio de Janeiro, Rio de Janeiro (PSDC):

José Richard is from humble origins. His mom worked as a maid, and his father was an office cleaner and interior painter. His childhood was the same as that of all poor children. While still a child he worked as a shoeshine boy to help his father, who paid for his studies with many sacrifices. As an adolescent, he split his time working as an office deliveryman during the day and studying during the night (Brazil's Popular Groups: Political Parties and Issues (BPG) 2012c).

- Marcelo Crivella, mayoral candidate in Rio de Janeiro, Rio de Janeiro (PRB):

When he was 14 years old, Crivella was already working to pay for his studies and after reaching 18 years old, he battled as a taxi driver while finishing his degree in civil engineering. (Brazil's Popular Groups: Political Parties and Issues (BPG) 2008c).

- Sérgio Santos, city council candidate in Petrópolis, Rio de Janeiro (PT):

Sérgio Santos, retired metalworker, worked 32 years in the [GE factory]. With his sons and grandchildren he has lived for 38 years in [a small peripheral village in Petrópolis]. His life in the community and his relationship with workers in his factory give him the credentials to be a city councilor in our city (Brazil's Popular Groups: Political Parties and Issues (BPG) 2004).

- Duciomar, mayoral candidate in Belém, Pará:

Duciomar was born on August 8, 1945 in the municipality of Bragança. At nine years old, he came with his family to the capital, in search of better opportunities and settled in [a poor neighborhood in the outskirts of the city]. The youngest of 12 siblings, Duciomar started to work when he was 10 years old as a newsboy on Sunday and informal traveling salesman during the week. Once grown, he collected his savings, bought a car, and rented a taxi license (Brazil's Popular Groups: Political Parties and Issues (BPG) 2008a).⁴⁷

⁴⁷Later, the biography noted that Duciomar was trained as an optometrist and ran several optometry clinics. It neglected to mention that he was convicted of illegally acquiring a medical license and sentenced to three years in jail.

B DESCRIPTIVE STATISTICS

Table 4: Candidates by occupation in Brazil's 2000-2012 mayoral elections

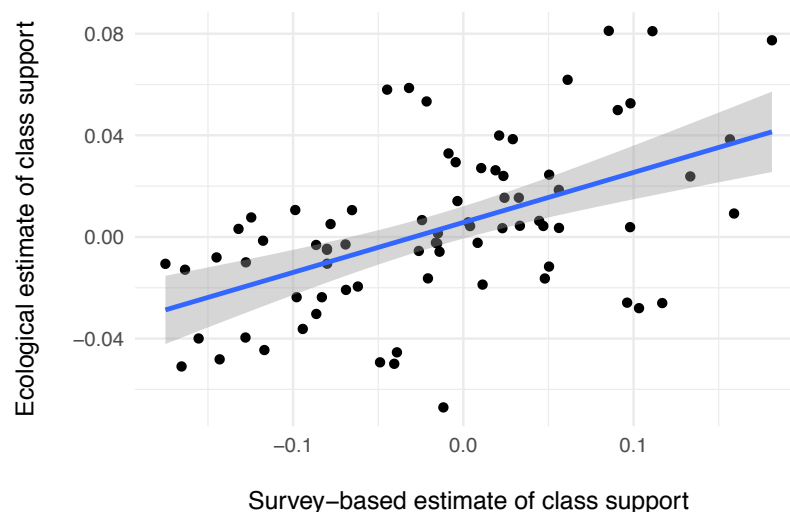
Occupation	2000	2004	2008	2012
Business	3,983	4,103	3,805	3,789
Religious	49	63	52	46
Creative	89	93	76	78
Doctor	1,278	1,317	1,150	927
Lawyer	929	948	866	852
Medical	185	245	246	330
Police	86	140	126	137
Professional	1,482	1,734	1,718	1,666
Public	1,317	1,585	1,450	1,588
Retired	392	308	268	223
Service	924	1,081	1,116	1,166
Student	27	46	62	79
Unemployed	77	61	104	114
Worker	2,174	2,424	2,257	1,954
Other	981	619	296	452

C VALIDITY OF ECOLOGICAL CLASS MEASURE

This article uses an ecological measure of class voting, which relies on precinct-level measures of education and vote choice. The main concern with the measure is the ecological inference problem: aggregate patterns might not accurately reflect group-level behavior. So, to check the validity of the measure, I created a similar measure using individual-level responses from the CESOP surveys. To create a class voting measure with the survey data, I calculated the incumbent's support among upper- and lower-class voters in each municipality, and then calculated the difference in incumbent support between these groups.

A plot comparing the estimates of an incumbent's class support using ecological and survey-based approaches can be found in Figure 5. The results suggest that the ecological measure is a good proxy for individual-level vote choice. The correspondence between the dichotomous ecological and survey-based measures of class voting can be calculated by comparing the number of observations in the upper right and lower left quadrants with the total number of observations. The aggregate and ecological classifications overlap in 75% of municipalities.⁴⁸

Figure 5: Comparison between estimates of class support created using electoral surveys and precinct-level electoral returns



Note: “class support” refers to the difference in support received from upper- and lower-class voters.

⁴⁸Misclassifications could be caused by measurement error in either the survey data or ecological indicator.

D CLASS SURVEY EXPERIMENT

This section includes additional details about the class survey experiment, which was conducted by Bueno and Dunning (2017a).

Full Question Wording

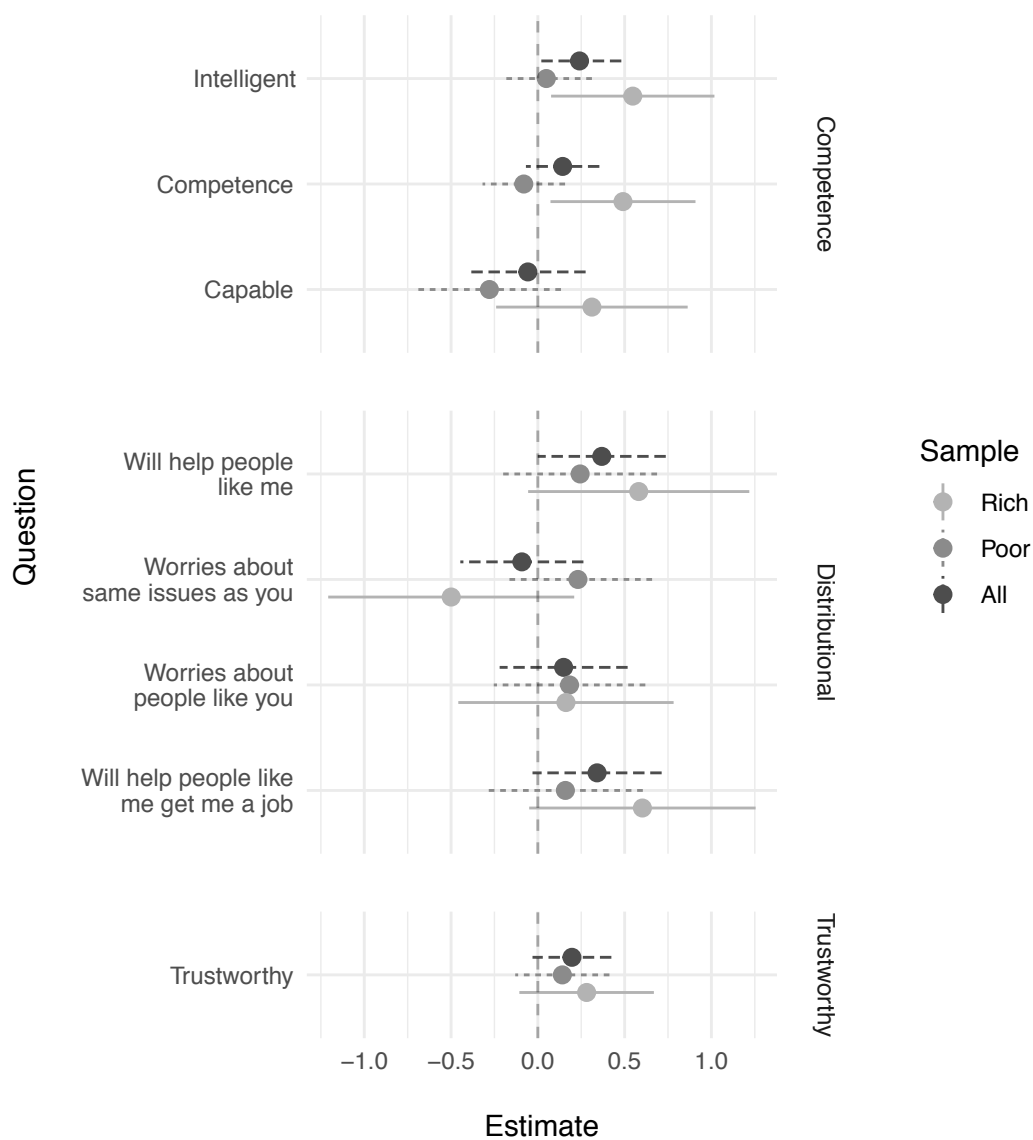
First, I present the original wording of the dependent variables. In the analysis, all variables are rescaled between 0 and 1 to facilitate comparisons across questions.

- *Este discurso faria o sr(a) votar neste candidato?* Responses range from: *Não, de forma nenhuma* (1); to *Sim, com certeza* (7).
- *Em sua opinião, o político do vídeo é inteligente?* Responses range from: *Nada inteligente* (1); to *Extremamente inteligente* (5).
- *Em sua opinião, o político do vídeo é competente?* Responses range from: *Nada competente* (1); to *Extremamente competente* (5).
- *Em sua opinião, o político do vídeo é confiável?* Responses range from: *Nada confiável* (1); to *Extremamente confiável* (5).
- *O candidato será capaz de enfrentar os desafios do cargo.* Responses range from: *Discordo Totalmente* (1); to *Concordo Totalmente* (7).
- *O candidato se preocupa com pessoas como o sr(a).* Responses range from: *Discordo Totalmente* (1); to *Concordo Totalmente* (7).
- *Se esse candidato fosse eleito, pessoas como o sr(a) receberiam mais benefícios sociais ou programas assistenciais do governo.* Responses range from *Discordo Totalmente* (1); to *Concordo Totalmente* (7).
- *Se esse político fosse eleito, pessoas como o(sr) teriam melhores chances de obter um trabalho no governo.* Responses range from: *Discordo Totalmente* (1); to *Concordo Totalmente* (7).

Complier average causal effect

There were two main concerns with the experimental analysis: (1) the treatment was relatively weak; and (2) it was unclear whether respondents perceived the change in clothes as a class treatment. So, as a robustness check, I use an instrumental variables approach to estimate a local average treatment effect for those respondents whose perceptions of the candidate's class were affected by the experimental manipulation. The results are presented in Figure 6 and are consistent with the ITT results.

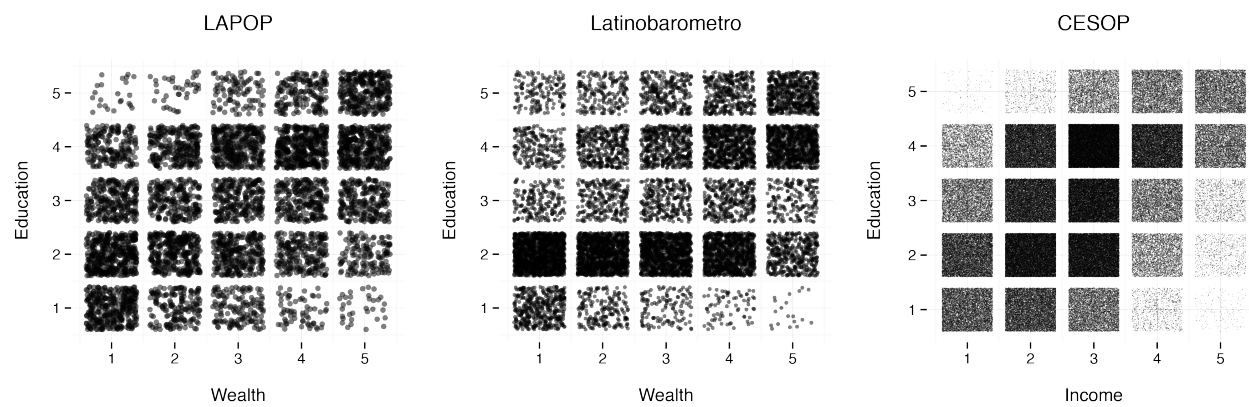
Figure 6: Effect of candidate sharing a respondent's class on vote choice and candidate evaluations (CACE)



E A NOTE ABOUT CLASS INDICATORS IN BRAZIL

Due to data availability, the analysis of vote choice relies on education as a proxy for class. As most academics can attest, educational attainment does not necessarily predict income, but education and income are tightly correlated in the Brazilian context. Figure 7 illustrates the relationship between income, wealth, and education quintiles across three different survey databases. Full details can be found in Johannessen (2017).

Figure 7: Relationship between income, wealth, and educational quintiles in Brazil across three survey databases



Source: Johannessen (2017)