"What to Run on?": Candidate Electoral Platforms in Peru

Alexey Makarin and Ricardo Pique *

PRELIMINARY DRAFT

PLEASE DO NOT CITE OR CIRCULATE WITHOUT AUTHORS' PERMISSION.

July 2016

Abstract

Do local political candidates run on common policy issues, their party's platform or an agenda of their own? In this paper, we study whether and how local candidates differ in their stated policy priorities. For this purpose, we construct a novel and rich dataset of all electoral platforms presented by mayoral candidates in Peru. We identify policy priorities or issue salience by analyzing the frequency of sub-strings linked to specific local issues. We complement this data with individual-level data on the characteristics of local candidates. Our results show that local government plan proposals exhibit significant variation across localities and party types. District and party fixed effects can explain up to 50% of the variance in issue frequency. Perhaps surprisingly, amid a weak party system, candidate characteristics have a lower ability to explain differences in policy priorities. These results are important as a first step in understanding how local electoral platforms affect economic and political outcomes.

*Makarin: Northwestern University, Department of Economics, 2001 Sheridan Road, Evanston, IL 60208, USA. Email: alexey.makarin@u.northwestern.edu. Pique: Northwestern University, Department of Economics. Email: rpique@u.northwestern.edu. We are grateful to Lori Beaman, Georgy Egorov, Seema Jayachandran and Nicola Persico for their helpful comments.

1 Introduction

Electoral platforms are one of the centerpieces of political economy models. Candidates state their future policies as a function of their ideological preferences, electoral incentives and their competitiors' actions. This choice can affect later policy implementation and, therefore, economic outcomes. While important, there is little systematic empirical evidence on what do individual candidates, rather than parties, state in their platforms and what affects their initial policy priorities. Moreover, in spite of the greater role of sub-national governments, particularly in the developing world, local electoral campaigns have been largely ignored as studies have mostly focused on national party platforms.

In this paper, we study whether and how candidate platforms differ at the local level. That is, we analyze the responsiveness of these political plans to locality, party and candidate characteristics. For this purpose, we build a unique dataset which contains the universe of electoral platforms presented by mayoral candidates in Peru. Specifically, we take advantage of the mandate established by the Peruvian local electoral law that obliges all politicians to submit a government plan proposal as a prerequisite for their candidacy. We parse these plans to identify their policy priorities or the salience of predetermined local issues. We do so by searching for and counting specific sub-strings that can be linked to specific local issues. We also benefit from the fact that the local electoral law mandates candidates to present their curriculum vitae in a standardized format. Therefore, we are able to complement our data with individual-level data on the characteristics of local candidates, including their education level, and past work and political experience.

Our results show that candidate platforms exhibit substantial variation across localities and party types. First, candidates respond to the characteristics of the municipality. Depending on the issue, district fixed effects explain between 15% to 32% of the variation in the frequency a given issue is mentioned in the proposals and between 15% to 45% of the variation in whether an issue is mentioned. In particular, local fixed effects appear to be particularly in issues such as local security and agriculture. In addition, we find that, as expected, candidates in more urban areas devote more attention to policies related to security and entrepreneurship.

Furthermore, candidates tend to bring up similar issues within the same party. In fact, even after controlling for fixed characteristics of each district, party fixed effects explain an extra 4% to 10% variation in issue salience. Party affiliation appears to be particularly important in explaining variation in mentions of corruption, use of land and entrepreneurship. This is evidence of remarkable

party discipline across municipalities amid a weak party system. In addition, national parties seem to mention more issues related to interactions with the central government than local issues. This might suggest that those parties are more willing to rely on central government agencies to address municipal problems. On the other hand, local party candidates tend to be more likely to mention issues related to local mining royalties and citizen participation. We also analyze the effect of traditional party ideology by analyzing whether tradition center-right and center-left parties present different plans. While their proposals do differ, the differences across party types (e.g. national vs sub-national parties) are stronger.

Finally, we document the extent to which candidate platforms depend on candidate characteristics. In principle, if individual ideology plays no role in coming up with a policy agenda, candidate characteristics should have no extra explanatory power after controlling for district and party fixed effects. Indeed, our results show that candidate characteristics have a significantly lower ability to explain differences in policy priorities. In most cases, these are able to explain less than 1% of the variation in issue salience. However, we are still able to document some interesting patterns. For example, candidates with more private sector jobs tend to mention policies related to entrepreneurship with a higher frequency. Moreover, incumbent candidates tend to stress the importance of infrastructure in their policy platforms to a greater extent and mention issues related to corruption less frequently.

These results complement two strands of the literature. First, we contribute to the empirical literature on political campaigning and policy differences across political parties.[1] Empirical studies on local politics have focused on ex-post policy differences across party types. For example, Ferreira and Gyourko (2009) find small effects of parties on outcomes in US cities. On the other hand, Pettersson-Lidbom (2008) finds that, in Swedish municipalities, left-wing governments outspend their right-wing counterparts. Only recently has some evidence emerged for developing countries. For example, Meyersson (2014) uses Turkish local data to find that Islamic party rule has a positive impact on female education enrollment. Moreover, Galindo-Silva (2015) and Aragon et al. (2015) study the effect of traditional and sub-national parties on local policy outcomes. Our results contribute to this literature by documenting the ex-ante differences in policy priorities across both party and candidate types. Moreover, the ex-ante divergence that we find informs future research on the mechanisms behind ex-post policy differences across parties and candidates.

[1]There is an extensive theoretical literature on issue selection during electoral campaigns. This includes studies by Glazer and Lohmann (1999), Colomer and Llavador (2012), Amorós and Puy (2013), Aragones et al. (2015) and Egorov (2015).

Second, our findings complement the literature on the analysis of political texts and their relation to political economy outcomes. Recent advances in parsing techniques have led to novel research on, for example, using political texts or speeches to measure polarization (Gentzkow et al., 2015) and media bias (Gentzkow and Shapiro, 2010), and to classify party affiliation (Yu et al., 2008; Quinn et al., 2010). In particular, our results contribute to the literature on the processing of political manifestos to identify ideological positions and policy priorities (Gabel and Huber, 2000; Laver and Garry, 2000; Laver et al., 2003). Our results complement this previous research in three main ways. First, we focus on local instead of national politics, where ideological biases across candidates are smaller. This means that our results should be a good reflection of differences in issue salience and policy priorities rather than differences in ideological position. Second, to the best of our knowledge, this is the first systematic effort to process electoral platforms or political manifestos in a developing country contexts. This separate analysis is useful as developing country lack strong political party systems that are usually observed in the developed world. Third, this is, to the best of our knowledge, the first time that such an extensive data on local candidate platforms, which includes the universe of all candidacies, has been analyzed. Using this large-scale within district and party variation, we are able to clearly link differences in policy positions to locality, party and candidate characteristics.

2 Peruvian Context

The territory of Peru is divided into 25 regions and the Province of Lima, which includes the metropolitan area of the capital city of Lima. Regions are split into provinces and these into districts. Currently there are 196 provinces and 1867 districts.

Each region is governed by a regional president and a group of regional council members known as "consejeros regionales". Provinces and districts are governed by municipal governments. Districts that serve as provincial capitals are administered by their respective provincial municipality. Municipal governments have an executive branch, the mayoral office, and a legislative branch, the municipal council. The first is headed by a mayor while the second is made up of council members known as "regidores".

Regional and local elections are held every four years. Elections in all localities take place in the same date[2]. In these, voters cast ballots for their respective regional president, provincial mayor

[2]Sub-national elections usually take place in October. It should be noted that if the election is nullified, then a new election takes place in July of the following year

and district mayor. Residents of a provincial capital district do not vote for a district authority as their district mayor is the provincial authority. To be elected as a regional president, the candidate requires an absolute majority. A run-off election is carried out shortly after the first round if necessary. On the other hand, mayors are elected by simple majority. The allocation of spots in regional and local councils is based on the number of votes obtained by each presidential or mayoral candidate. At the local level, the elected mayor's party is given an automatic majority in the council.

Regional and local authorities are elected for a four-year term. Nonetheless, they can be recalled during their second and third year of their term. At the local level, the threat of recall is high. In past terms, around 25% of mayors have been subject to a recall. Between 6% and 10% have actually been recalled. Turnover of authorities is also relatively high due to limited incumbency advantage. Less than a third of the 60% of incumbent mayors that run for re-election get re-elected.

This paper uses data from the 2006 and 2010 local elections. In those years, local elections were very competitive. For example, in 2006, an average of 7 candidates run in each jurisdiction. This led to high vote fragmentation. The average vote share of the winning party was 34% while the average winning margin was less than 9%. The very competitive political environment is due, in part, to lenient requirements for presenting a candidacy. For example, candidates do not need to belong to a national political party. That is, they can run as part of their own regional or local political movement. Moreover, to register a political organization, support from a very small fraction of the electoral population in their respective jurisdiction is needed.[3] Sub-national parties have benefited from these low costs of entry. In the last local election, sub-national parties were victorious in more than 70% of the jurisdictions.

Our analysis will exclude regional government plans and will focus on municipal plans. Therefore, it is important to highlight the main tasks of municipal government. Municipalities have had a secondary role for the most part of the country's history. However, following the 2002 decentralization process, this scenario changed. Municipalities now share responsibility with the central government in the provision of basic infrastructure and some basic services. Moreover, local governments experienced dramatic increases in their budgets. Since 2002, aggregate municipal budgets have increased by more 500%. This was largely due to increases in central government transfers.[4]

[3]For example, in 1300 districts, new political organizations were required to collect less than 100 signatures to present a candidate.

[4]The Municipal Compensation Fund (FONCOMUN) is the main transfer scheme. It redistributes a fraction of sales tax revenues to local governments. Moreover, municipalities also receive a percentage of corporate tax revenues generated by mining companies operating in their jurisdiction or their respective province.

Given these additional resources, municipalities are important players in the public investment process and, therefore, key drivers of local development.[5]

3 Data and Methodology

3.1 Government Plans

This paper analyzes government plan proposals presented by candidates running for mayoral office in the 2006 and 2010 Peruvian local elections. We exclude from our analysis regional government plans as the institutional framework under which regional governments operate is different from that of municipalities and there is limited statistical power to carry out a separate study for regions. Access to all government plans was given by the National Jury of Elections (JNE). The data includes those proposals that are made available to the public, as well as those from candidates who withdrew their candidacies before the elections.

From 2006 onward, all candidates running for an executive sub-national office are mandated to submit a government plan proposal to the JNE which details the main policies each candidates wants to implement. The documents are uploaded into JNE's public information system (INFOGOB) before the local electoral campaign starts. That is, all citizens can access the proposals presented in their jurisdiction, as well as those submitted elsewhere. Moreover, candidates must also present a summary of their proposals in a standardized format.[6] Candidates must state the objectives and values of their political organization, their government plan's vision and list their main proposals on social, economic, environmental and institutional issues.

While the proposal summary must follow strict guidelines, there are no rigid mandatory requirements with respect to the content of government plan proposals. However, the JNE does provide parties with instructions to take as a reference. For example, proposals should be in accordance with basic national development objectives as stated by the Strategic Plan for National Development[7] and with the economic projections and policies shown in the Multiannual Macroeconomic Framework[8], as well as with regional development plans. Moreover, the proposals should only be

[5]Local governments account for over 40% of the national investment budget and more than 20% of the total government budget.

[6]Due to issues regarding how the summaries are stored, the JNE is still in the process of providing us with this data.

[7]The Strategic Plan is elaborated by the National Center for Strategic Planning (CEPLAN). According to CEPLAN, the document contains the "policy guidelines, priorities, objectives, goals and strategic actions to achieve the country's harmonic development."

[8]The Multiannual Macroeconomic Framework is produced by the Ministry of Economics and Finance and contains macroeconomic proyections for the next three years. It also contains an analysis of national economic policy measures.

related to tasks which local governments are responsible for.

To summarize the government plans and identify each candidate's policy priorities, we parse the documents using a code that identifies and counts the occurrence of specific sub-strings. These sub-strings are related to key municipal issues or tasks. To identify the most prominent issues, we first construct a list based on municipal responsibilities as established by the Organic Law of Municipalities (LOM). The LOM states that municipalities have either sole or joint responsibilities in the following broad issues: zoning, local public service provision, environmental protection, local economic development, citizen participation, local social services and drug enforcement. For each of these broad categories, the LOM establishes more specific tasks.[9] Second, for each municipal issue, we choose the most important sub-strings linked to each issue. This is done based on the LOM as well as on a sample of government plans.

Table 1 shows the list of issues with their respective sub-strings. In most cases, it is straightforward to understand the link between each sub-string and its issue. It should be noted that some sub-strings are root words. For example, for health-related issues, we look for the sub-string "medic". This allows us to search for words such as "medico" (medical doctor) and "medicina" (medicine). This approach eliminates the chance of not counting related words that are informative about policy priorities.[10]

To parse the documents, we first convert them to a plain text format with a common character encoding.[11] This allows for an easier identification of sub-strings. It should be noted that, in few cases, the documents are scanned images of hard copy proposals submitted by candidates to the JNE. For most of these cases, we were able to successfully apply Optical Character Recognition (OCR) in order to obtain a plain text file. Moreover, we were not able to convert a small subset of files which were saved in a secured format.[12] Files with scanned images and secured files account for less than 4% of the universe of government plans. Therefore, even excluding them completely from our sample should not generate any significant biases.

Our parser code is based on the Python programming language. The code first reads each text file by decoding it given the character encoding. It then divides the text into words and counts the total number of words. After that, it counts the number of times each substring we are looking for

[9] For example, local public service provision includes health, education, security and culture, among others.

[10] It also poses the risk of counting unrelated words. However, given that we use very specific roots, any bias should be minimal.

[11] Files are converted to UTF-8 as it is capable of encoding all possible characters. Other character encodings standards do not allow to encode characters with Spanish accents.

[12] Those files need a password to be edited. Candidates were not mandated to provide that password.

appears in the text. The sub-string search takes into account Spanish accents.[13] Finally, it adds the counts for all sub-strings that correspond to a given issue.

Table 2 shows the summary statistics of the sub-string count for all candidate plans that were correctly parsed.[14] In general, proposals tend to be relatively extensive, considering the fact these are only meant to address local issues in a synthesized manner. The average proposal has around 3000 words. There is significant variation in this statistic. Less than 1% of plans can be considered empty documents as they contain less than 100 words while more than 30% of plans contain more than 5000 words. Moreover, this variation appears to be, to some extent, deterministic. Figure 1 shows that most districts in the upper quintile of the distribution of average total words are located in the western part of the country.

There is also very high variance within and across issues. Sub-strings related to culture, health and education have the highest frequency. Sub-strings related to infrastructure, which includes roads, electricity, water and sewage, and telecommunications, are mentioned, on average, 21 times. On the other hand, sub-strings related to specific population groups and social programs are barely mentioned.

3.2 Other Sources

We complement the data on government plan proposals with information on local elections, and municipal and candidate characteristics.

Detailed results for the 2006 and 2010 elections were provided by the JNE. Among other variables of interest, the data includes the number of votes received by each party as well as the category of each party according to the Registry of Parties.[15] The JNE also provided detailed data on recall voting results and lists of elected authorities. This allows us to correctly identify incumbent candidates.

We have compiled information on municipal characteristics from various sources. In particular, we use annual budgeted and actual municipal expenditures dis-aggregated at the account and source of funding level. This data is reviewed by the Ministry of Economics and Finance (MEF) at the

[13] For example, for issue Education, we search for both "educacion" and "educación".

[14] That is, it excludes those plans for which OCR was not able to convert images to text and those that were saved in a secured format.

[15] There are two main types of political organizations: political parties and political movements of local coverage. National parties have to draw support from across the country in order to be registered as such. These are required to collect a minimum number of voter signatures based on the number of votes cast in the last national election. Sub-national parties can be divided into two groups: regional movements and local organizations. These draw their support from citizens in their local jurisdictions.

end of the year. We complement this with information from MEF's Financial Administration Integrated System (SIAF). From it, it is possible to obtain data on, for example, monthly mayoral wages. With respect to social and demographic characteristics, data was obtained from the 2005 and 2007 Population Census. In particular, we use information on provision of public services such as water, sewage and electricity and population education levels.

Most importantly, to analyze differences in policy priorities across candidate types, we employ data from candidates' curricula vitae. All candidates running for office are mandated to present information on their education and work experience in a standardized format. The curriculae vitae are stored in INFOGOB and are available to voters before each election. While candidates self-report the information, the JNE checks whether it is truthful. Submitting false information might result in the candidate's exclusion from the electoral process. The data from the 2010 CVs was obtained by a scraping process while data from the 2006 CVs was directly given by the JNE. Since the no response for the 2006 cohort of candidates is relatively high, our final estimates on the effect of candidate characteristics will only use data for the 2010 cohort.[16]

3.3 Methodology

The purpose of this study is to analyze the variance in candidates' policy priorities. The richness of the local government platform data allows us to estimate the effect of factors such as locality, party type, candidate type and reward of holding office. We identify these effects by taking advantage of candidate-level variation in government plan proposals within a given party and party-level variation within a given locality.

We start by estimating the effects of locality. According to the median voter theorem, one should be able to explain a significant fraction of the variation in candidate platforms using only municipality indicators within each election. To provide evidence on the maximum variation that can be attributed to local effects, we estimate the following model using ordinary least squares:

$$y_{ct} = \alpha_d \times \alpha_t + \tau T_{ct} \times I_y + \varepsilon_{ct} \tag{1}$$

where y_{ct} is the salience of issue y in candidate c plan in election year t, α_d's and α_t's are district and election year fixed effects, respectively, T_{ct} is the total number of words in the government plan proposal, and I_y is an indicator equal to 1 when y_{ct} is measured as number of words related to the

[16] In 2010, more than 96% of candidates have at least one entry for education and more than 80% have at least one entry for work experience.

issue and not a dummy variable for whether there is a positive count of words.[17] We then measure the maximum variation in issue salience that can be explained by municipality-election fixed effects via the change in R^2.[18]

Next, we evaluate the extent to which party affiliation predicts variation in candidate platforms. In particular, we analyze how much variation in issue salience do party fixed effects explain on top of the municipality indicators.[19] As parties could stress different issues in different elections, we interact party fixed effects with election year. That is, we estimate:

$$y_{ct} = \alpha_d \times \alpha_t + \alpha_p \times \alpha_t + \tau T_{ct} \times I_y + \varepsilon_{ct} \tag{2}$$

where α_p's are political party fixed effects and notation for other variables stays the same. To measure the amount of extra variation explained by party discipline on top of the maximum variation due to local characteristics, we document the change in R^2 from equation (1) to (2). It should be noted that estimates in models (1) and (2) will include any effects from locality and party differences that operate through candidate selection. Therefore, they should be interpreted as upper bounds on the variance these factors can explain together.

Finally, to isolate the impact of candidate characteristics that cannot be explained by municipality or party characteristics, we estimate the following model:

$$y_{ct} = \alpha_d \times \alpha_t + \alpha_p \times \alpha_t + X'_{ct}\beta + \tau T_{ct} \times I_y + \varepsilon_{ct} \tag{3}$$

where X_{ct} is a vector of candidate characteristics. In fact, we claim that this specification comes close to being able to causally identify the effect of candidate characteristics on issue salience, i.e. on policy preferences. The identifying assumption needed is that municipality and party characteristics account for all possible omitted variables that can affect both issue salience and the types of candidates who run for office.

It is difficult to come up with examples that would violate this assumption. An omitted factor has to affect issue salience, be correlated with a given candidate characteristic, but not be captured

[17] Intuitively, we do not want to capture a spurious correlation coming from the fact that some candidates use more or less words in general. This is not a problem when the outcome is an indicator for whether an issue is mentioned or not. It is a problem, however, when the outcome is the number of sub-strings related to a given issue. Therefore, $I_y = 0$ when y_{ct} is the number of sub-strings and $I_y = 1$ when y_{ct} is an indicator.

[18] Our results do not change in any significant way when we use adjusted R^2. We use ordinary R^2 for the ease of interpretation.

[19] Most local political movements only appear once in the sample. These movements, particularly those at the district level, tend to be ephemeral movements created by a single political leader. In these cases, no party fixed effect was included as we cannot identify the effect of the party from the effect of the specific candidate.

by municipality or party fixed effects. If a district attracts a certain type of candidates and has specific needs reflected in candidate platforms, this will be capture by municipality fixed effects. If certain party types only present candidates in districts with specific characteristics and certain candidate types are affiliated to specific party types, this will be captured by party fixed effects. Moreover, our dataset on candidate characteristics is quite rich. It includes information on several observable characteristics such as age, education level, and previous work and political experience. Given this, it is unlikely that any unobservable candidate characteristic conflates our results.

To provide further evidence on the marginal contributions of locality, party and candidate characteristics in explaining the variance of policy priorities, we calculate the Shapley value for each group of regressors. This value was first introduced by Shapley (1953) as a way to distribute surplus generated by a coalition of agents in a game conditional on satisfying basic axioms.[20] Based on these axioms, the Shapley value for a given agent is his expected marginal contribution to all permutations of coalitions. This means that the value can be easily extended to variance decomposition analysis (Shorrocks, 2013). In particular, we calculate the following. Let G_d, G_p and G_c be groups of all district-year fixed effects, party-year fixed effects and candidate characteristics[21], respectively, and let $A = \{G_d, G_p, G_c\}$. Then the Shapley value for element $a \in A$ is:

$$Sh(a) = \sum_{S \subseteq A \backslash a} \frac{|S|!(|A| - |S| - 1)!}{|A|!} (R^2(S \cup a) - R^2(S)) \tag{4}$$

where $R^2(X)$ is the R^2 of a regression using all regressors in X. That is, the Shapley value is the average change in R^2 due to the introduction of group of variables a to a regression with regressors S, where S is any subset of $A \backslash a$. The average is taken over all possible orderings of A. This means that to calculate the value, we need to carry out four auxiliary regressions.[22] To limit the number of groups and reduce the number of permutations needed, we use the percentage of sub-strings as the outcome as opposed to the number of sub-strings. Otherwise the total number of words in the document becomes a separate group and complicates the analysis.

[20] The distribution of surplus satisfies the following axioms: 1) efficiency: all the surplus generated by the coalition is divided among participating players; 2) symmetry: when two players are perfect substitutes in terms of the value they add to any coalition, their value is equal; 3) null value of dummy players: if the value of a coalition does not change when an agent is incorporated, his value is zero, and 4) additivity: if two sub-games are remodeled as a single game where each coalition gets a payoff equal to the sum of the sub-game payoffs, then the payment for each member is also the sum of the sub-game payments.

[21] G_c incorporates more characteristics than those for which we report results in Tables 7 and 7. In particular, we also include a dummy for whether the candidate has other types of tertiary education and one for whether the candidate reports at least one job in the job experience section of his CV. This last dummy is used to avoid biases due the candidate no response

[22] These are: the outcome variable on G_p alone, on G_c alone, on G_d and G_c, and on G_p and G_c.

To estimate the impact of rewards of holding office, we follow an instrumental variable approach due to Pique (2015). In particular, we use mayoral wages as a measure of rewards and use mayoral wage caps introduced by the central government as the excluded instrument. These caps are a step function of the electoral population in the province or district, depending on the type of municipality. Therefore, as long as other covariates vary smoothly and flexible controls for the continuous effects of the electoral population are introduced, the caps will allow to identify the effect of wages.[23] Specifically, we estimate the following two-stage least squares (TSLS) model:

$$w_{ct} = \gamma_0 + \gamma_1 w_{ct}^{cap} + f(P_{ct}) + X'_{ct}\zeta + \eta_{ct} \tag{5}$$

$$y_{ct} = \beta_0 + \beta_1 \hat{w}_{ct} + f(P_{ct}) + X'_{ct}\lambda + \varepsilon_{ct} \tag{6}$$

In equation (5), mayoral wages (w_{ct}) for candidate c in election year t are modeled as a function of the excluded instrument (the wage caps, w_{ct}^{cap}), a continuous function $f(\cdot)$ of the electoral population (P_{ct}) and a set of control variables (X_{ct}). In equation (6), the outcome variable, y_{ct}, is modeled as a function of the first-stage wage estimate and controls included in the first stage regression. To account for the fact that variation in wages and wage caps occurs at the district level, we correct the standard errors in this IV model on a district level.

4 Results

4.1 Locality

According to the median voter theorem, candidate's policy priorities should perfectly converge in response to voters' preferences. If this is the case, municipality-election fixed effects should explain all the variation in candidates' policy positions. Therefore, we first analyze how much variation in proposals can be explained by the candidate's jurisdiction. In this first stage, we will not control for party or candidate characteristics. Therefore, our estimates will include all possible mechanisms by which local characteristics affect policy priorities, including changes in party type and candidate selection.

Tables 3 and 4 show the results. Table 3 shows the effect of locality on the number or percentage of sub-strings related to an issue, Table 4 on whether an issued is mentioned. The first three columns present the percentage of the variance explained by local characteristics. In particular, it illustrates

[23] For more discussion of identification, see Pique (2015).

the percentage of the variance attributed to region, province and district fixed effects. In addition, column 4 reports the Shapley value for district fixed effects. In general, local characteristics appear as very important predictors. In most cases, district fixed effects can account for between 15% and 30% of total variation. The result holds for both types of outcome variables. Municipal characteristics are particularly important for the salience of "security" and "agriculture" issues. This is to be expected. Matters related to security are particularly important in urban areas while agriculture is only relevant in rural areas. Moreover, in both of these issues, municipal government can play a key role. For tasks related to social development, such as education and social programs, where the central government bares more responsibilities, locality fixed effects have a slightly lower explanatory power.

The last three columns of Tables 3 and 4 give additional information on the effect of local characteristics. Column 5 shows the estimated effect of a dummy variable for whether the district is in the Lima/Callao metropolitan area. First, the estimate in the first row of column 5 implies that Lima candidates prepare more extensive proposals. In particular, Lima plans have 0.25 standard deviations more words than those outside the capital. Moreover, these tend to focus relatively more on security and entrepreneurship and less on issues such as agriculture and basic infrastructure (electricity, water-sewage, roads). These results can be due to the fact that Lima is the richest area in the country and concentrates most of the country's commercial activities. This explains the greater emphasis in policies related to entrepreneurial activity relative to other issues.[24] In addition, in the previous decade, crime has taken a stronger foothold in the city. This can explain why security is such a salient issue.

Finally, the last two columns show the effect of specific local characteristics. In particular, we analyze the effect of urban population and poverty on issue salience. The estimates for the former follow a similar pattern to those in Lima. Perhaps surprisingly, we also observe that district-level poverty has a similar effect on policy priorities. For example, areas with high poverty tend focus more on security and entrepreneurship and less on agriculture.

The aforementioned results illustrate municipality-election fixed effects and local characteristics do have a strong effect on issue salience. However, there is at least 70% of variation to be explained. This motivates the following analysis on the effect of party types and candidate characteristics.

[24] Cost of doing business is an extensively debated topic in the capital.

4.2 Parties

Political organizations have different ideologies and policy positions. Therefore, it is expected that their policy proposals will also differ. Moreover, party type might also affect candidate selection. This could lead to even stronger differences. However, the Peruvian party system, as that of other Latin American countries, is weak. That is, local elections are dominated by regional and local political movements with no clear ideologies that are constantly merging or disappearing. In this context, party discipline tends to be weak and parties might not be a good predictor of policy priorities.

Our results show that, even amid a weak party system, political organizations are an important factor in explaining differences in policy priorities. The first three columns of Tables 5 and 6 show the variance that can be explained by party fixed effects. For the case when the outcome variable is the percentage of words related to the issue, party dummies explain between 5% and 17% of variance in issue salience. If we condition on locality characteristics, then the explanatory power of parties decreases but remains at a high level. In this case, these can account for between 4% and 10% of the variance. The strong predictive capacity of parties is confirmed by our calculation of the Shapley values. These are in the range of 6% and 17%. Party fixed effects are also good predictors when the outcome variable is a dummy for whether the issue is mentioned. In this case, the average percentage of the variance explained tends to be slightly lower. However, the values are still quite high, as party dummies can account for between 4% and 18% of the variance.

We also explore the effect of different party types on policy priorities. In particular, we analyze whether national parties present different types of plans relative to their sub-national counterparts. The results are shown in columns 4 to 8 of Tables 5 and 6. National parties appear to write shorter proposals. Moreover, they focus less on most issues related to local public service provision and local economic development. Their focus is centered on issues related to local government administration, such as taxes and local fees, and corruption. We also carried a series of auxiliary regressions on the effect on issues related to interactions with the central government. We find that national parties focus more on these issues as well. It should be noted that these results also hold for when the outcome variables is a dummy for whether the issue is mentioned. Hence, the strong negative effects observed for national parties is not due to their smaller platforms but rather a change in priorities towards a very specific set of issues.

On the other hand, regional movements prepare more extensive proposals than the average party. These assign a higher priority to those issues that are neglected by national parties. In par-

ticular, regional movements prioritize policies related to health, infrastructure and the environment. Regarding local movements, while there are some significant effects, these tend to be smaller and there is no discernible pattern. Nonetheless, it is worth highlighting that, unlike other parties, local movements prioritize citizen participation. This result is appealing as the basis for allowing local political movements is to reduce the gap between the political party system and citizens.

Finally, we provide some evidence on whether traditional party ideology affects policy priorities at the local level. For this purpose, we analyze whether the two main, traditional center-left and center-right parties, APRA and PPC, were able to impose party discipline on their candidate's platforms. The results are shown in the last two columns of Tables 5 and 6. Again, we do find significant effects on several issues. For example, we find that both APRA and PPC focus less on health and the environment than the average party. We also identify interesting differences between these two organizations. For example, APRA tends to focus relatively more on policies related to infrastructure and mining royalties and less on issues related to security and corruption. However, the differences across party types are stronger than those between these two parties.

4.3 Candidates

The previous analysis shows that both local and party characteristics matter for policy priorities. However, in a weak party system, candidates should have a big say when setting policy priorities. Therefore, candidate characteristics are expected to have a significant effect on government plan proposals.

Based on self-reported information that candidates register in their CVs, we are able to analyze the effect of a broad set of candidate characteristics on government plan proposals. The estimates are shown in Tables 7 and 8. In general, candidate characteristics do not appear to be good predictors of issue salience in government plans. For both types of outcome variables, the Shapley value for candidate characteristics in almost all issues is less than 1%. It should be noted that these results are not a product of over-fitting the model with district and party fixed effects. In fact, running regressions controlling only for candidate characteristics produces similar results. In those regressions, the percentage of the variance explained by candidate characteristics is, in most cases, less than 1%.[25]

The only outcome for which we consistently observe significant effects, though not large in

[25]For the case when the outcome is the percentage of words related to an issue, only in three issues (security, agriculture and entrepreneurship) do we observe an R^2 higher than 1%. In all cases, these value is lower than 3%.

magnitude, across most candidate characteristics is the extension of the proposals. For example, incumbent politicians present plans that are 0.16 standard deviations more extensive than the average. Older candidates tend to present smaller plans. In addition, the more work experience a candidate has, both in terms of the number of public or private sector jobs he/she reported in his CV, the more likely he/she is to present more extensive proposals.

A couple of other estimates are worth noting. For example, incumbents focus relatively more on infrastructure and less on corruption. The greater emphasis in infrastructure is to be expected as incumbents hold an advantage over rookie mayors in terms of investment implementation (Aragón and Pique, 2016). The lack on emphasis on corruption might reflect that incumbents do not want to be perceive as leading a corrupt administration in their previous term. Moreover, candidates who have held more public sector jobs are less likely to mention sub-strings related to entrepreneurship. This is particularly so when they are compared to their private sector counterparts. While this result might not be entirely causal[26], it might suggest that candidates with a private sector background, who might be more aware about local restrictions to doing business, prioritize entrepreneurship related proposals.

4.4 Reward of Holding Office

The pecuniary value of holding office is one of the most important factors in a candidate's decision to run for office. Higher rewards can attract more able candidates with higher opportunity costs. These can also motivate candidates to exert more effort during the campaign. Therefore, altering the pecuniary value of holding office can have important effects on government plan proposals.

Table 9 shows the effects of mayoral wages on policy priorities. As aforementioned, these are obtained from an IV regression in which mayoral wage caps are used as an instrument for wages. While wages have a significant effect on the salience of various issues, a clear pattern does not emerge. For example, in better-paid municipalities, candidates tend to mention more sub-strings related to zoning and issues related to local production and productivity such as infrastructure, agriculture and tourism.

When the outcome variable is whether an issue is mentioned, we do observe similar results in zoning, agriculture and tourism. Moreover, we observe that, in better-paid municipalities, candidates tend to have a higher probability of mentioning policies related to corruption. This might be

[26] Agents select themselves to different jobs. Therefore, unobservable characteristics might be differ between public and private sector workers.

related to the greater political opposition that the incumbent mayor faces in these localities (Pique, 2015). However, the lack of a more robust pattern suggests that these results should be taken with caution.

5 Conclusion

This paper examines how policy priorities expressed in local electoral platforms differ across localities, parties and candidates. We do so by analyzing government plan proposals submitted by candidates running for local office in Peru. By combining this information with an extensive data on local candidate characteristics, we are able to disentangle the variance in policy priorities.

Our results show that candidates do respond to municipal characteristics. District fixed effects can explain between 15% to 40% of the variance in the frequency a given issue is mentioned. Moreover, candidates that share party affiliation tend to focus on similar issues. After controlling for district characteristics, party fixed effects can account for an additional 4-10% variation in issue salience. Finally, we find that candidate characteristics are not a very good predictor of policy priorities. This last result is particularly surprising given that Peru, as other developing countries, is characterized by a weak party system.

The above results constitute the first step of a broader research agenda that aims to give a conclusive answer to the question of whether parties and candidates affect government and economic outcomes due to differences in their platforms. While there is an extensive literature on how party and candidate types impact outcomes, less is known about the mechanisms that drive these ex-post differences. In particular, it is unclear what is the impact of ex-ante differences in policy priorities. Our rich dataset on local government plan proposals, together with detailed local Peruvian public accounts, will allow us to provide evidence on this.

References

Amorós, P. and M. S. Puy (2013). Issue Convergence or Issue Divergence in a Political Campaign? *Public Choice 155*(3-4), 355–371.

Aragon, F., A. Makarin, and R. Pique (2015). National Parties and Local Development: Evidence from Peruvian Municipalities.

Aragón, F. and R. Pique (2016). Do Re-elected Politicians Perform Differently even without Term Limits?

Aragones, E., M. Castanheira, and M. Giani (2015). Electoral Competition through Issue Selection. *American Journal of Political Science 59*(1), 71–90.

Colomer, J. M. and H. Llavador (2012). An Agenda-Setting Model of Electoral Competition. *SERIEs: Journal of the Spanish Economic Association 3*(1), 73–93.

Egorov, G. (2015). Single-Issue Campaigns and Multidimensional Politics. Technical report, National Bureau of Economic Research.

Ferreira, F. and J. Gyourko (2009). Do political parties matter? evidence from us cities-super. *The Quarterly Journal of Economics 124*(1), 399–422.

Gabel, M. J. and J. D. Huber (2000). Putting Parties in their Place: Inferring Party Left-Right Ideological Positions from Party Manifestos Data. *American Journal of Political Science*, 94–103.

Galindo-Silva, H. (2015). New parties and policy outcomes: Evidence from colombian local governments. *Journal of Public Economics 126*, 86–103.

Gentzkow, M. and J. M. Shapiro (2010). What Drives Media Slant? Evidence from US Daily Newspapers. *Econometrica 78*(1), 35–71.

Gentzkow, M., J. M. Shapiro, and M. Taddy (2015). Measuring Polarization in High-Dimensional Data: Method and Application to Congressional Speech.

Glazer, A. and S. Lohmann (1999). Setting the Agenda: Electoral Competition, Commitment of Policy, and Issue Salience. *Public Choice 99*(3-4), 377–394.

Laver, M., K. Benoit, and J. Garry (2003). Extracting Policy Positions from Political Texts Using Words as Data. *American Political Science Review 97*(02), 311–331.

Laver, M. and J. Garry (2000). Estimating Policy Positions from Political Texts. *American Journal of Political Science*, 619–634.

Meyersson, E. (2014). Islamic rule and the empowerment of the poor and pious. *Econometrica 82*(1), 229–269.

Pettersson-Lidbom, P. (2008). Do parties matter for economic outcomes? a regression-discontinuity approach. *Journal of the European Economic Association 6*(5), 1037–1056.

Pique, R. (2015). Higher Pay, Worse Outcomes? The Impact of Mayoral Wages on Local Government Quality in Peru.

Quinn, K. M., B. L. Monroe, M. Colaresi, M. H. Crespin, and D. R. Radev (2010). How to Analyze Political Attention with Minimal Assumptions and Costs. *American Journal of Political Science 54*(1), 209–228.

Shapley, L. S. (1953). A Values for n-person Games, HW Kuhn and AW Tucker, eds., Contributions to the Theory of Games, Vol. II.

Shorrocks, A. F. (2013). Decomposition procedures for distributional analysis: a unified framework based on the shapley value. *Journal of Economic Inequality*, 1–28.

Yu, B., S. Kaufmann, and D. Diermeier (2008). Classifying Party Affiliation from Political Speech. *Journal of Information Technology & Politics 5*(1), 33–48.

Appendix

Table 1: Substrings Searched by Issue

Issue	Sub-strings
Zoning	zonificacion; catastro; acondicionamiento territorial
Local Public Services	
Education	educa; colegio; escuela; universidad
Health	salud; medic; salubridad
Security	seguridad; policia; serenazgo; vigilancia; delincuencia; terror
Culture / Sport	deport; cultura; arte; biblioteca
Environment	ambient; ecolog; bosque; parque; contamina
Local Economic Development	
Infrastructure	
i. Transport / Roads	transporte; via; carretera; camino; pista
ii. Electricity	electri; alumbrado
iii. Water / Sewage	agua; desague; saneamiento; limpieza
iv. Telecommunications	telecomunicacion; internet; telefon
Agriculture	agricultura; agricola; agro; irriga
Enterpreneurship	empresa; emprendedor
Tourism	turis
Citizen Participation	participacion ciudadana; juntas vecinales; presupuesto participativo
Local Social Services	
Social Programs	programas sociales; ayuda alimentaria; asistencia social; vaso de leche
Youth / Women / Elderly / Disabled	ni; adolescente; adulto mayor; mujer; discapaci
Government	
Taxes / Fees	impuesto; arbitrio; licencia; TUPA
Mining Royalties	canon; regalia
Corruption	corrup; transparen
Drugs and Alcohol	droga; alcohol

Note: In case of words that should have an accent (eg. "educacion"), we search for the substring with and without the accent.

Table 2: Summary Statistics for Government Plans

	N	Mean	SD	Min	Max	% of Plans Citing Issue
Total # of words	25139	2986	2747	2	65444	
# of sub-strings related to:						
Zoning	25139	0.8	1.6	0	23	36%
Local Public Services						
Education	25139	13.9	12.8	0	227	98%
Health	25139	11.4	11.1	0	271	97%
Security	25139	6.2	8.0	0	360	85%
Culture / Sport	25139	21.2	17.7	0	282	99%
Environment	25139	9.4	11.3	0	267	91%
Local Economic Development						
Infrastructure	25139	23.1	22.3	0	494	99%
i. Transport / Roads	25139	11.1	12.2	0	303	96%
ii. Electricity	25139	1.4	2.0	0	33	57%
iii. Water / Sewage	25139	9.5	10.5	0	245	94%
iv. Telecommunications	25139	1.1	1.8	0	23	48%
Agriculture	25139	9.9	10.7	0	235	92%
Enterpreneurship	25139	4.8	6.6	0	213	81%
Tourism	25139	7.4	8.3	0	123	88%
Citizen Participation	25139	1.3	1.9	0	30	56%
Local Social Services						
Social Programs	25139	1.3	1.9	0	23	55%
Youth / Women / Elderly / Disabled	25139	7.2	8.7	0	186	85%
Government						
Taxes / Fees	25139	0.5	1.4	0	57	22%
Mining Royalties	25139	1.9	7.4	0	217	27%
Corruption	25139	2.4	3.2	0	66	68%
Drugs and Alcohol	25139	0.6	1.4	0	26	25%

Note: Category infrastructure includes sub-strings related to transport and roads, electricity, water and sewage, and telecommunications.

Figure 1: Average Total Words by District (2010)

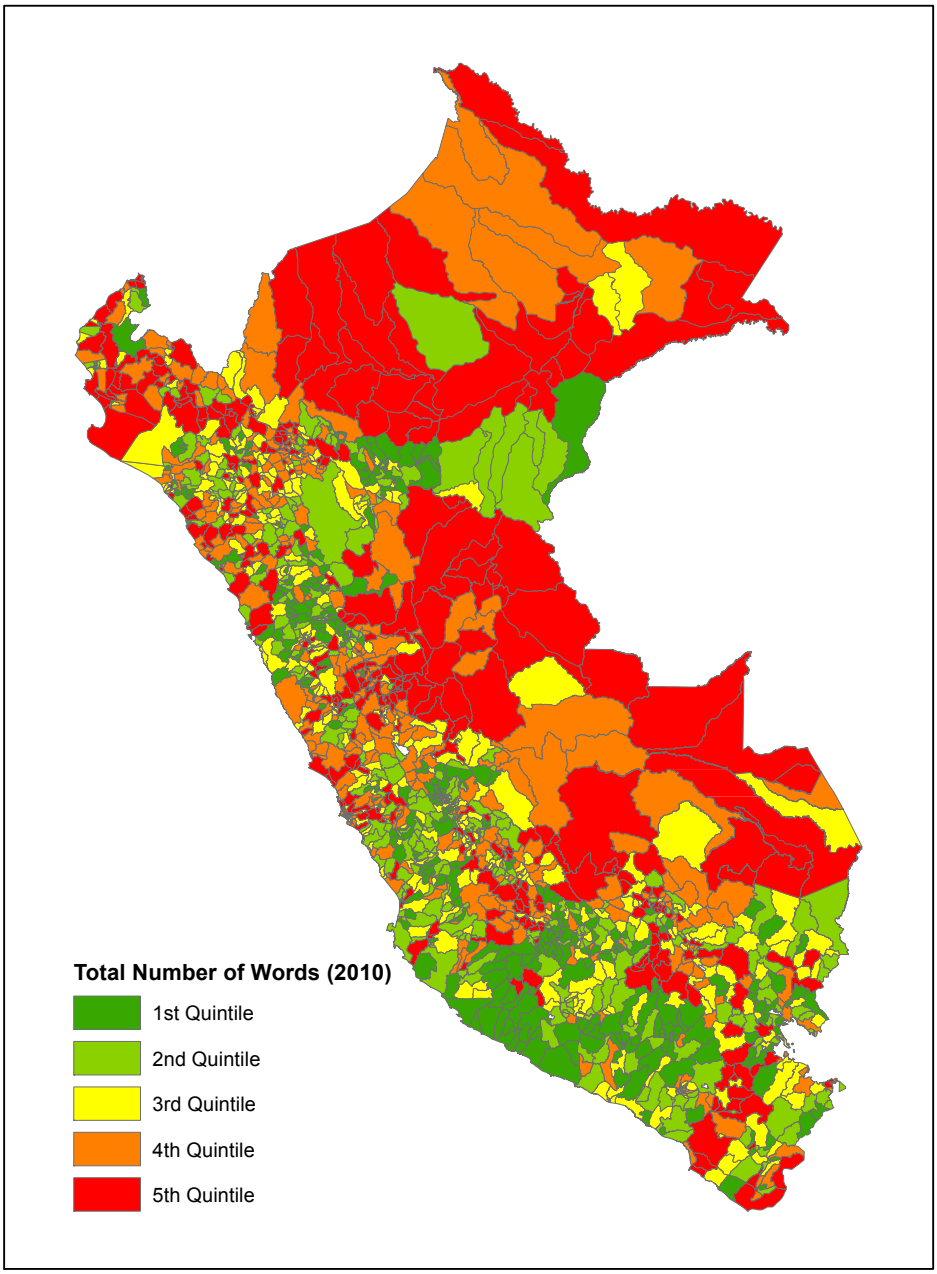

Table 3: Effect of Locality on Relative Issue Salience

	% Variation Explained By:				Slope of OLS Regression:		
			District			Share of	Share of HHs
	Region	Province	No Controls	Shapley Value	Lima	urban population	w/o basic needs satisfied
Total # of words	7.20%	11.42%	23.77%	19.46%	882.328***	371.365***	866.301***
# of sub-strings related to:							
Zoning	3.10%	6.62%	18.41%	15.58%	0.449***	0.282***	1.083***
Local Public Services							
Education	2.68%	7.00%	18.41%	18.05%	-2.356***	-1.919***	-7.376***
Health	2.57%	7.46%	20.07%	17.58%	-2.846***	-2.663***	-9.968***
Security	9.61%	19.53%	31.45%	31.77%	9.409***	4.938***	17.750***
Culture / Sport	7.97%	12.63%	23.77%	18.20%	-2.036***	-0.417**	1.614**
Environment	11.43%	16.58%	27.64%	18.53%	2.505***	1.371***	5.347***
Local Economic Development							
Infrastructure	4.04%	8.99%	22.33%	20.08%	-6.504***	-2.410***	-5.277***
i. Transport / Roads	4.32%	9.17%	21.93%	20.00%	-0.946***	-0.734***	-0.290
ii. Electricity	3.95%	8.71%	22.26%	19.03%	-0.926***	-0.779***	-2.249***
iii. Water / Sewage	2.60%	7.96%	22.73%	20.44%	-4.044***	-0.389***	-1.131**
iv. Telecommunications	2.53%	6.96%	20.28%	17.32%	-0.587***	-0.508***	-1.606***
Agriculture	7.09%	17.36%	32.13%	31.80%	-10.657***	-6.693***	-20.812***
Enterpreneurship	3.01%	8.63%	20.67%	20.88%	3.151***	2.391***	7.817***
Tourism	5.38%	13.82%	29.68%	28.88%	-3.916***	-0.238*	2.475***
Citizen Participation	1.31%	5.16%	16.44%	16.71%	0.143**	0.330***	1.251***
Local Social Services							
Social Programs	2.38%	5.75%	17.02%	15.61%	0.046	0.024	-0.089
Youth / Women / Elderly / Disabled	3.82%	8.06%	18.83%	17.08%	1.649***	1.035***	2.273***
Government							
Taxes / Fees	3.15%	8.47%	24.81%	22.66%	1.264***	0.647***	2.211***
Mining Royalties	9.58%	13.55%	23.15%	15.81%	-1.915***	-0.339**	-0.416
Corruption	7.74%	11.61%	20.86%	17.01%	0.383***	0.333***	0.437*
Drugs and Alcohol	5.69%	11.08%	23.28%	23.73%	1.420***	0.864***	2.459***

Note: *** - significance at less than 1% level; ** - significance at 5%; * - significance at 10%. The first three columns refer to the percentage of the variation in the dependent variable that can be explained by region, province and district fixed effects, respectively, in a model that only includes those fixed effects as controls. Column 4 reports Shapley values for district fixed effects calculated for the year of 2010 according to the methodology described in Section 3.3. The specifications in Columns 1-4 Row 2 onward use the percentages of substrings relative to the total number of words in the document as outcome variable. The last three columns show the estimated coefficients for a dummy variable that takes a value of 1 if the district is in the Lima metropolitan area and for the share of the district population residing in urban areas and the share of district households with at least one unsatisfied basic need, respectively. The specifications in Columns 5-7 Row 2 onward include no controls except the total number of words in the document, while Row 1 includes no controls at all.

Table 4: Effect of Locality on Absolute Issue Salience

	% Variation Explained By:				Slope of the OLS Regression:		
			District			Share of	Share of HHs
	Region	Province	No Controls	Shapley Value	Lima	urban population	w/o basic needs satisfied
=1 if issue mentioned:							
Zoning	4.68%	9.20%	19.86%	16.64%	0.194***	0.106***	0.406***
Local Public Services							
Education	0.90%	4.23%	16.44%	16.46%	-0.022***	-0.013***	-0.055***
Health	1.06%	4.39%	15.94%	16.31%	-0.013**	-0.010***	-0.063***
Security	2.73%	8.39%	20.21%	18.92%	0.141***	0.123***	0.486***
Culture / Sport	1.35%	5.54%	16.79%	14.99%	-0.001	-0.006**	-0.010
Environment	6.68%	9.93%	22.79%	15.12%	0.048***	0.036***	0.154***
Local Economic Development							
Infrastructure	0.59%	3.24%	13.90%	13.09%	-0.006	-0.005**	-0.010
i. Transport / Roads	0.99%	3.87%	16.04%	15.28%	-0.010	-0.025***	-0.065***
ii. Electricity	4.22%	8.81%	20.40%	19.64%	-0.226***	-0.217***	-0.670***
iii. Water / Sewage	1.51%	4.06%	14.98%	14.25%	-0.048***	-0.009*	-0.015
iv. Telecommunications	2.82%	6.89%	18.22%	17.52%	-0.101***	-0.119***	-0.315***
Agriculture	8.37%	23.06%	38.25%	42.73%	-0.529***	-0.243***	-0.820***
Enterpreneurship	1.92%	7.48%	19.30%	18.30%	0.120***	0.109***	0.348***
Tourism	2.67%	7.18%	20.93%	20.98%	-0.113***	0.003	0.107***
Citizen Participation	2.35%	6.52%	17.17%	16.90%	0.074***	0.076***	0.314***
Local Social Services							
Social Programs	3.54%	7.55%	18.56%	18.25%	0.036**	0.023**	0.004
Youth / Women / Elderly / Disabled	1.68%	6.01%	17.46%	17.44%	0.067***	0.027***	0.092***
Government							
Taxes / Fees	3.31%	9.52%	22.07%	19.89%	0.390***	0.216***	0.745***
Mining Royalties	9.15%	13.45%	23.03%	19.78%	-0.164***	-0.048***	-0.178***
Corruption	11.20%	14.91%	25.10%	14.72%	0.107***	0.047***	-0.011
Drugs and Alcohol	6.61%	13.31%	24.62%	24.70%	0.421***	0.274***	0.677***

Note: *** - significance at less than 1% level; ** - significance at 5%; * - significance at 10%. The first three columns refer to the percentage of the variation in the dependent variable that can be explained by region, province and district fixed effects, respectively, in a model that only includes those fixed effects as controls. Column 4 reports Shapley values for district fixed effects calculated for the year of 2010 according to the methodology described in Section 3.3. The specifications in Columns 1-4 Row 2 onward use the percentages of substrings relative to the total number of words in the document as outcome variable. The last three columns show the estimated coefficients for a dummy variable that takes a value of 1 if the district is in the Lima metropolitan area and for the share of the district population residing in urban areas and the share of district households with at least one unsatisfied basic need, respectively. The specifications in Columns 5-7 Row 2 onward include no controls except the total number of words in the document, while Row 1 includes no controls at all.

Table 5: Effect of Parties on Relative Issue Salience

	% Variation Explained By Parties:							
	No Controls	Conditional on Locality	Shapley Value	National Party	Regional Movement	Local Movement	APRA	PPC
Total No. of words	14.55%	9.02%	13.52%	-394.060***	459.813***	233.412***	-167.538***	-444.535***
# of sub-strings related to:								
Zoning	12.11%	9.71%	17.50%	-0.088***	0.104***	0.093*	-0.061**	-0.219**
Local Public Services								
Education	7.45%	5.87%	8.87%	-0.184*	0.160	0.084	-0.202	-0.782
Health	7.34%	5.87%	8.61%	-0.732***	0.615***	0.143	-0.460***	-0.773*
Security	12.11%	5.71%	10.56%	-0.170**	0.282***	0.069	-0.594***	0.052
Culture / Sport	12.91%	6.33%	9.52%	-0.369***	0.095	0.731**	-0.281	0.722
Environment	17.38%	6.54%	10.67%	-0.384***	0.523***	-0.418**	-0.593***	-0.994**
Local Economic Development								
Infrastructure	10.48%	7.41%	12.20%	-0.789***	0.583***	0.818**	0.802***	-2.481***
i. Transport / Roads	9.72%	6.39%	10.20%	-0.276***	0.004	0.270	0.580***	-0.751
ii. Electricity	6.31%	3.91%	6.98%	-0.026	0.082***	0.063	0.019	-0.144
iii. Water / Sewage	8.68%	7.04%	11.83%	-0.395***	0.407***	0.411*	0.179	-1.413***
iv. Telecommunications	7.50%	5.40%	8.32%	-0.091***	0.090***	0.073	0.024	-0.173**
Agriculture	10.59%	5.51%	10.04%	-0.372***	0.392***	-0.542**	0.041	-0.858*
Enterpreneurship	10.66%	8.01%	9.46%	-0.036	0.063	-0.161	-0.061	0.379
Tourism	8.99%	4.54%	8.44%	-0.451***	0.412***	0.055	-0.130	-0.772**
Citizen Participation	5.92%	5.15%	8.34%	-0.031	0.007	0.227***	0.033	-0.250**
Local Social Services								
Social Programs	7.43%	5.74%	7.23%	-0.051**	0.102***	-0.203***	0.017	0.054
Youth / Women / Elderly / Disabled	11.60%	8.35%	10.64%	-0.039	-0.184*	0.358	-0.375***	0.447
Government								
Taxes / Fees	5.81%	4.22%	5.98%	0.037**	-0.053***	0.030	0.028	-0.035
Mining Royalties	14.73%	8.55%	7.45%	-0.208**	0.166	0.563*	0.436***	-0.349*
Corruption	16.85%	10.06%	13.36%	0.066*	-0.039	-0.088	-0.278***	0.127
Drugs and Alcohol	7.03%	4.21%	7.44%	-0.015	-0.004	0.028	-0.022	0.053

Note: *** - significance at less than 1% level; ** - significance at 5%; * - significance at 10%. Dependent variable in Row 1 is the total number of words in the document. In Columns 1-4 Row 2 onward, the dependent variable is the number of sub-strings as a percentage of the total number of words. In other columns, the dependent variable is the total number of sub-strings otherwise. Columns 1-2 refer to the percentage of the variation in the dependent variable that can be explained by party-year fixed effects in a model with no controls and controlling for district-year fixed effects, respectively. Column 3 reports Shapley values for party fixed effects calculated for the year of 2010 according to the methodology described in Section 3.3. Other columns show the estimated coefficients for a dummy variable that takes a value of 1 if the candidate's party is a national party, a regional movement, a local movement, the APRA or the PPC, respectively, in the specification with district-year fixed effects and total number of words in the document as controls.

Table 6: Effect of Parties on Absolute Issue Salience

	% Variation Explained By Parties:							
	No Controls	Conditional on Locality	Shapley Value	National Party	Regional Movement	Local Movement	APRA	PPC
=1 if issue mentioned:								
Zoning	11.66%	8.31%	10.40%	-0.038***	0.052***	-0.005	-0.013	-0.090***
Local Public Services								
Education	3.32%	3.34%	3.49%	-0.009***	0.006***	0.007*	-0.011***	-0.008
Health	5.06%	4.68%	5.17%	-0.012***	0.010***	0.009*	-0.015***	0.011
Security	8.62%	6.71%	10.59%	-0.024***	0.029***	0.015	-0.053***	0.019
Culture / Sport	5.66%	4.66%	4.31%	-0.002	0.000	-0.002	-0.004*	0.005
Environment	9.81%	4.17%	3.92%	-0.023***	0.025***	-0.002	-0.021***	0.012
Local Economic Development								
Infrastructure	4.68%	4.86%	3.56%	-0.004**	0.002	0.001	-0.003	0.005
i. Transport / Roads	5.45%	4.93%	4.41%	-0.009***	0.004	0.012*	0.005	-0.030**
ii. Electricity	8.88%	6.93%	9.93%	-0.030***	0.036***	0.034**	-0.003	-0.032
iii. Water / Sewage	9.11%	8.53%	12.42%	-0.016***	0.012***	0.006	0.003	-0.007
iv. Telecommunications	9.83%	7.48%	10.03%	-0.038***	0.033***	0.031**	0.013	-0.081**
Agriculture	9.12%	3.66%	6.83%	-0.002	0.004	-0.014*	0.005	0.004
Enterpreneurship	7.94%	6.11%	8.17%	-0.011**	0.016***	-0.016	0.019**	0.058**
Tourism	7.59%	6.05%	9.47%	-0.016***	0.021***	0.020**	-0.013**	-0.007
Citizen Participation	9.45%	7.45%	9.63%	-0.025***	0.027***	0.035**	0.012	-0.042
Local Social Services								
Social Programs	9.18%	6.96%	9.02%	-0.023***	0.033***	0.006	0.020*	0.013
Youth / Women / Elderly / Disabled	8.04%	7.34%	9.49%	-0.029***	0.033***	0.018	-0.017**	-0.014
Government								
Taxes / Fees	8.20%	5.91%	8.41%	-0.011*	0.019***	0.001	-0.019**	-0.034
Mining Royalties	13.54%	7.31%	11.53%	-0.041***	0.037***	0.083***	0.027***	-0.072***
Corruption	17.74%	7.08%	9.82%	-0.033***	0.031***	0.007	-0.065***	0.014
Drugs and Alcohol	9.70%	5.76%	9.70%	-0.019***	0.009	-0.000	-0.014*	0.020

Note: *** - significance at less than 1% level; ** - significance at 5%; * - significance at 10%. Dependent variable in Row 1 is the total number of words in the document. In Columns 1-4 Row 2 onward, the dependent variable is the number of sub-strings as a percentage of the total number of words. In other columns, the dependent variable is the total number of sub-strings otherwise. Columns 1-2 refer to the percentage of the variation in the dependent variable that can be explained by party-year fixed effects in a model with no controls and controlling for district-year fixed effects, respectively. Column 3 reports Shapley values for party fixed effects calculated for the year of 2010 according to the methodology described in Section 3.3. Other columns show the estimated coefficients for a dummy variable that takes a value of 1 if the candidate's party is a national party, a regional movement, a local movement, the APRA or the PPC, respectively, in the specification with district-year fixed effects as controls.

Table 7: Effect of Candidate Characteristics on Relative Issue Salience

	% Variance Explained	Incumbent	Age	Female	University	# of Public	# of Private	Has/Had
	Shapley Value			Candidate	Degree	Sector Jobs	Sector Jobs	Party Job
Total No. of words	0.92%	417.080***	-6.650***	-74.788	50.751	70.719***	80.399***	103.000
# of sub-strings related to:								
Zoning	0.09%	-0.002	-0.004**	0.026	0.003	-0.011	-0.001	0.071*
Local Public Services								
Education	0.23%	0.158	-0.018**	-0.199	-0.184	0.066	-0.037	-0.122
Health	0.16%	0.092	-0.013*	-0.162	0.158	-0.004	-0.063	0.032
Security	1.18%	-0.353*	-0.013**	-0.191	-0.152	-0.035	0.019	0.012
Culture / Sport	0.12%	-0.582*	-0.001	-0.335	0.093	0.088	0.080	-0.586**
Environment	0.13%	0.240	0.003	-0.026	0.245	-0.031	-0.073	-0.306
Local Economic Development								
Infrastructure	0.27%	1.855***	0.021*	0.095	0.236	0.149*	-0.052	0.641**
i. Transport / Roads	0.20%	0.752***	0.005	0.085	-0.001	0.069	-0.072	0.163
ii. Electricity	0.07%	0.124*	-0.001	-0.079	0.057	0.031**	0.015	0.024
iii. Water / Sewage	0.14%	0.975***	0.020**	0.084	0.170	0.026	-0.005	0.385*
iv. Telecommunications	0.18%	0.004	-0.003*	0.006	0.010	0.023*	0.009	0.069
Agriculture	1.20%	-0.372	-0.001	-0.081	0.279	0.129**	0.011	-0.516***
Enterpreneurship	0.65%	-0.465***	-0.002	-0.369**	0.143	-0.066*	0.079*	0.021
Tourism	0.06%	0.263	0.001	-0.281	0.382**	0.040	0.024	0.076
Citizen Participation	0.13%	-0.059	-0.002	-0.061	-0.011	-0.005	0.018	0.056
Local Social Services								
Social Programs	0.10%	-0.070	-0.001	0.016	-0.035	0.015	0.014	0.002
Youth / Women / Elderly / Disabled	0.19%	0.408*	-0.011*	-0.010	0.018	0.053	0.147**	-0.111
Government								
Taxes / Fees	0.39%	-0.029	0.002*	0.113*	0.015	-0.008	-0.016	0.015
Mining Royalties	0.07%	0.110	0.006	0.129	-0.070	0.052	-0.060	0.063
Corruption	0.26%	-0.436***	-0.005	0.259**	-0.024	0.023	0.047	0.105
Drugs and Alcohol	0.43%	0.039	-0.001	0.037	0.017	-0.001	0.003	-0.079**

Note: *** - significance at less than 1% level; ** - significance at 5%; * - significance at 10%. Column 1 reports Shapley values for candidate characteristics calculated for the year of 2010 according to the methodology described in Section 3.3. Columns 2-7 show the estimated coefficients for a dummy variable that takes a value of 1 if the candidate is an incumbent, the candidate's age, dummy variable for whether the candidate is a woman, a dummy for whether the candidate has a university degree, the number of public and private sector jobs held and a dummy for whether the candidate has held a party position. These come from regressions of the number of sub-strings related to a given issue on all of the candidate characteristics together, controlling for district and party fixed effects, as well as the total number of words in the document.

Table 8: Effect of Candidate Characteristics on Absolute Issue Salience

	% Variance Explained	Incumbent	Age	Female	University	# of Public	# of Private	Has/Had
	Shapley Value			Candidate	Degree	Sector Jobs	Sector Jobs	Party Job
=1 if issue mentioned:								
Zoning	0.38%	0.036**	-0.001**	0.006	0.007	0.001	0.011**	-0.002
Local Public Services								
Education	0.20%	0.002	-0.000*	-0.000	0.005*	0.001	-0.000	-0.001
Health	0.16%	0.014**	-0.000	0.005	0.008**	0.001	0.000	-0.006
Security	0.37%	0.024**	-0.000	0.016	-0.002	0.005**	0.002	0.005
Culture / Sport	0.22%	-0.001	-0.000**	-0.002	0.003	0.002***	0.001	0.002
Environment	0.21%	0.000	-0.001***	-0.010	0.003	0.002**	0.000	0.002
Local Economic Development								
Infrastructure	0.06%	0.004	-0.000	0.003	-0.003	0.001	0.000	-0.000
i. Transport / Roads	0.08%	0.013*	-0.000	0.012	-0.004	0.001	0.004*	0.004
ii. Electricity	0.29%	0.054***	-0.001	-0.017	0.023*	0.006*	0.006	0.015
iii. Water / Sewage	0.06%	0.006	-0.000	0.005	-0.003	0.002	0.001	0.005
iv. Telecommunications	0.33%	0.039**	-0.001**	-0.001	0.005	0.011***	0.011**	0.006
Agriculture	1.84%	0.013*	-0.000	-0.009	-0.001	0.001	-0.001	-0.009
Enterpreneurship	0.36%	-0.004	-0.001**	0.002	0.002	0.004	0.006**	0.021**
Tourism	0.24%	0.028**	-0.001***	-0.009	0.007	0.001	0.004	0.012
Citizen Participation	0.26%	0.036**	-0.001	0.012	-0.008	0.002	0.010**	0.014
Local Social Services								
Social Programs	0.20%	0.010	-0.001	0.011	-0.011	0.005	0.011**	-0.000
Youth / Women / Elderly / Disabled	0.39%	0.014	-0.000	0.009	-0.003	0.007***	0.013***	0.015
Government								
Taxes / Fees	0.75%	0.012	-0.000	0.025	-0.008	0.001	0.003	0.025**
Mining Royalties	0.09%	-0.018	0.001	0.007	-0.014	0.004	0.001	0.008
Corruption	0.28%	0.002	-0.001**	0.019	0.020**	0.003	0.003	0.007
Drugs and Alcohol	0.66%	0.024	-0.001**	0.010	0.006	0.004	0.007*	-0.008

Note: *** - significance at less than 1% level; ** - significance at 5%; * - significance at 10%. Column 1 reports Shapley values for candidate characteristics calculated for the year of 2010 according to the methodology described in Section 3.3. Columns 2-7 show the estimated coefficients for a dummy variable that takes a value of 1 if the candidate is an incumbent, the candidate's age, dummy variable for whether the candidate is a woman, a dummy for whether the candidate has a university degree, the number of public and private sector jobs held and a dummy for whether the candidate has held a party position. These come from regressions of the indicator whether any sub-string related to a given issue was present in the document, on all of the candidate characteristics together, controlling for district and party fixed effects.

Table 9: Effect of Mayoral Wages on Local Government Plans

	Mayoral Wages (IV)			
	# of sub-strings related to:		*=1 if issue mentioned:*	
	coeff.	SE	coeff.	SE
Zoning	0.144***	(0.041)	0.034***	(0.012)
Local Public Services				
Education	0.165	(0.267)	0.001	(0.003)
Health	-0.942***	(0.242)	-0.002	(0.004)
Security	0.171	(0.213)	0.014*	(0.008)
Culture / Sport	0.017	(0.292)	0.002	(0.002)
Environment	0.500*	(0.266)	0.001	(0.003)
Local Economic Development				
Infrastructure	1.089**	(0.513)	-0.001	(0.002)
i. Transport / Roads	0.715**	(0.320)	-0.000	(0.004)
ii. Electricity	-0.045	(0.053)	-0.007	(0.013)
iii. Water / Sewage	0.433	(0.351)	0.001	(0.004)
iv. Telecommunications	-0.014	(0.040)	-0.009	(0.012)
Agriculture	0.961***	(0.343)	0.039***	(0.010)
Enterpreneurship	0.177	(0.149)	-0.000	(0.008)
Tourism	1.562***	(0.251)	0.017**	(0.008)
Citizen Participation	-0.009	(0.067)	0.020*	(0.012)
Local Social Services				
Social Programs	-0.102**	(0.048)	-0.001	(0.014)
Youth / Women / Elderly / Disabled	-0.078	(0.240)	0.010	(0.008)
Government				
Taxes / Fees	0.011	(0.038)	0.015	(0.011)
Mining Royalties	-0.131	(0.128)	-0.007	(0.013)
Corruption	-0.057	(0.110)	0.023**	(0.009)
Drugs and Alcohol	-0.075	(0.046)	-0.003	(0.010)

Note: *** - significance at less than 1% level; ** - significance at 5%; * - significance at 10%. The table shows the estimated coefficient for mayoral wages using a two-stage least square regression with the number of sub-strings related to a particular issue or an indicator whether any such sub-string appeared in the document. Mayoral wage caps are used as an instrument for wages. For for the discussion of the first stage and identification, see Pique (2015).