

An Assessment of Election Irregularities During the 2018 Parliamentary Elections

Daniel Garrote Sanchez



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Executive Summary

Lebanon held parliamentary elections in May 2018, the first time in nine years due to political stalemate. These were the first elections since the new electoral law was passed in June 2017, with the hope that it would reinvigorate the democratic process. In spite of the changes in the law, the 2018 elections were conducted amid nationwide allegations of fraud and irregularities committed by various political parties and candidates. Overall, the Lebanese Association for Democratic Elections recorded more than 7,000 violations on election day. Election irregularities can take different forms and can occur in different phases of the election process, through voter rigging, by putting pressure on the voter, or through vote rigging, by manipulating the vote itself. This report presents a thorough attempt to assess the presence of irregularities in the 2018 parliamentary elections. The overall results cast doubts about the fairness of the elections. We estimate that close to half of the population was subjected to vote buying that translated into higher turnout benefiting traditional political parties. We also find suggestive evidence of ballot stuffing and fraud in the counting and aggregation process. Different lists and parties are associated with different irregularities, although the main results highlight that traditional parties tend to engage in various forms of fraudulent actions while independent lists and civil society movements suffer the consequences with more tamed electoral outcomes.

I Introduction

In May 2018 Lebanon held national elections for the first time in nine years due to the political stalemate. These elections were also the first ones to take place with the new electoral law that passed in June 2017, which provided some hopes of reinvigorating the democratic process. The new law included multi-member proportional representation instead of the traditional majoritarian system, allowed Lebanese overseas to vote, and introduced pre-printed ballots to reduce potential vote trafficking. All these measures were stepping stones perceived to increase the chances of independent non-traditional parties to obtain seats in Parliament, although no major changes were introduced in order to curb the sectarian political system.

In spite of these changes, the 2018 elections were conducted amid allegations of fraud and irregularities committed by various political parties and candidates, similar to the 2009 elections.¹ The international delegation of European Union observers assessed the elections as overall positive, but at the same time recognized that ‘observers received a few credible reports of allegations of vote buying.’² Overall, the Lebanese Association for Democratic Elections recorded more than 7,000 violations on election day.³ The alleged violations were reported throughout the electoral campaigns and during election day, and include the use of violence or intimidation of voters and the distribution of handouts in exchange of votes.

Irregularities can take different forms and can occur in different phases of the election process. Prior to the day of the election, politicians and their intermediaries can engage in vote trafficking, other clientelistic transactions, or overt pressures on voters that shape the electoral behavior. During election day, there can also be coercions on voters either to vote or not to vote. All these irregularities fall under the umbrella of ‘voter rigging,’ as they put direct pressure on the voter. Irregularities can also occur after voters cast their ballot, in particular during the counting of votes. During this process, parties can add fake ballots (‘ballot stuffing’), subtract some ballots (‘ballot disappearance’), or they can change the number of votes when counting them. These irregularities are called ‘vote rigging,’ as there is no interaction with the voter, and instead the fraud occurs by directly changing the will expressed in the ballots.

This report presents a thorough attempt to assess the presence of irregularities in the 2018 parliamentary elections in Lebanon, making use of both post-election survey data and electoral data obtained from the Ministry of Labor. The second section analyzes the extent of vote buying based on the Lebanon Public Opinion survey that was run in October 2018 by Statistics Lebanon in consultation with the Lebanese Center for Policy Studies. In the third section, we use administrative data on the elections at the polling station level to assess the

¹ For a thorough analysis of the 2009 general elections, see: Corstange, D. 2012. ‘Vote Trafficking in Lebanon.’ *International Journal of Middle East Studies*, 44(3): 483-505.

² European Unions. 2018. ‘European Union Election Observation Mission to the Republic of Lebanon 2018.’

³ Rizkallah, A. May 11, 2018. ‘What Can We Learn from Lebanon’s Elections?’ *Washington Post*.

presence of voter rigging, using cues on patterns of turnout by size of the polling station, as well as correlations between turnout and the share of votes for different lists. Finally, we use statistical tests in section four to estimate whether there was fraud and manipulation of votes ('vote rigging').

The overall results cast doubts about the fairness of the elections. We estimate that close to half of the population was subjected to vote buying that translated into higher turnout. This occurred more predominantly in small and homogeneous polling stations where politicians and brokers could better monitor voters' actions. In turn, instances of abnormally higher turnout led to a higher share of votes for incumbent parties in each district, thus benefiting the traditional parties in power. Interestingly, these patterns were observed more clearly in non-politically competitive districts where specific parties accumulated a larger control. Beyond voter rigging, we also find suggestive evidence of ballot stuffing and fraud in the counting and aggregation process. Across parties, we observe that different lists are associated with different irregularities, although the main results highlight that traditional parties tend to engage in various forms of fraudulent actions while independent lists and civil society movements suffer the consequences with more tamed electoral outcomes.

II Direct Evidence of Vote Buying Through a Household Survey

Vote buying has been a constant feature of the Lebanese elections as in many other developing countries. The parliamentary elections of May 2018 were no exception, with several allegations and anecdotal evidence of vote buying before and during election day.⁴

While in certain instances vote buying, as a form of clientelism, has been acknowledged to take the role of redistributive policies in the absence or under-provision of social services, it has been shown that it can undermine democracy and economic development. Vote buying shifts the balance of power and allows politicians to reward or penalize voters for their electoral behavior instead having voters holding politicians accountable.⁵ Furthermore, instead of just filling a vacuum, vote buying can become a substitute for public service goods, where politicians allocate funds to private transfers while lowering the provision of public goods,⁶ which in turn reduces accountability of politicians and decreases competition.

There are different methods to assess the presence and severity of vote buying, ranging from pre- and post-elections surveys of citizens, to more indirect statistical analysis of administrative data on the electoral outcomes. In this section, we use the Lebanon Public Opinion Survey (LPOS) to estimate the extent of vote buying in the

4 Anderson, F. May 7, 2018. 'Observers Note Access, Vote Buying Issues at Polling Stations.' *The Daily Star*.

5 Atallah, S. and Z. El-Helou. 2018. 'Lebanese Elections: Clientelism as a Strategy to Garner Votes.' Lebanese Center for Policy Studies.

6 Stokes, S. C. 2007. 'Political Clientelism.' In *The Oxford Handbook of Political Science*; Keefer, P., and R. Vlaicu. 2008. 'Democracy, Credibility, and Clientelism.' *Journal of Law, Economics, and Organization*, 24: 371-406; or Hanusch, M., P. Keefer, and R. Vlaicu. 2016. 'Vote Buying or Campaign Promises? Electoral Strategies When Party Credibility is Limited.' IDB-WP-691, Inter-American Development Bank (IDB), Washington, DC.

2018 elections and to assess the profile and characteristics of the citizens who received handouts to shape their vote. The LPOS was conducted by Statistics Lebanon in consultation with the Lebanese Center for Policy Studies in October 2018. The survey targeted 1,200 respondents equally divided between genders and is representative of the confessional and regional distribution of Lebanese citizens.

Defining Vote Buying and Its Different Forms

Vote buying can be defined as the process by which politicians directly or, more frequently, through mediators or brokers, offer handouts or gifts in the form of cash or in-kind goods or services in order to persuade constituents to vote in a certain manner, mobilize on election day, or abstain from voting.⁷ However, as voting is—in principle—secret, voters may accept the handouts and then not follow through the initial commitment of voting (or not voting) in the way agreed with the politicians or brokers. This problem of imperfect enforcement, and of the contract between the parties, may lead to lower levels of transactions than the ones the parties would desire to have if they were able to provide fully credible commitments.⁸

The vast political science literature on the topic shows that the general term ‘vote buying’ covers in reality different types of exchanges that target different constituents and require various levels of monitoring of voters’ behavior. In a seminal paper, Nichter (2008) provides a key distinction between ‘vote buying’ and ‘turnout buying’.⁹ The former is understood as offering benefits in exchange for vote choices (e.g. a broker can offer cash handouts in exchange of a voter to go to the poll and cast a ballot for a particular candidate or party for whom s/he works). In contrast, ‘turnout buying’ refers to parties offering rewards in exchange of mobilizing voters to vote, regardless of who they vote for. The logic of turnout buying lies in the fact that parties are often unable to fully monitor voters’ choices given the secrecy of the ballot. In order to work in their favor, parties target ‘turnout buying’ to weakly committed supporters, who are party sympathizers that hesitate whether to vote or not. It is a way to mobilize the passive constituents.¹⁰ In contrast, ‘vote buying’ is harder to enforce and targets weakly committed opponents’ supporters and offers rewards to persuade them to switch their vote choice (e.g. voting for one party instead of the one they were inclined to vote).¹¹ This type of transaction is also called ‘switch buying’.¹² A third strategy consists of ‘abstention buying,’ which targets weakly committed opponents’ supporters by paying them to stay home rather than casting their ballot.¹³ All these strategies can coexist in an election, although there is usually one that prevails depending on the context.¹⁴

The phenomenon of vote buying¹⁵ in Lebanon can be understood as being part of a broader system of patronage and clientelism, through

⁷ See for example: Hicken, A. 2011. ‘Clientelism.’ *Annual Review of Political Science*, 14: 289–310; Schaffer, F. and A. Schedler. 2007. ‘What Is Vote Buying?’ In *Elections for Sale: The Causes and Consequences of Vote Buying*, ed. by F. Schaffer, Boulder, Colorado: Lynn Rienner; or Nichter, S. 2008. ‘Vote Buying or Turnout Buying? Machine Politics and the Secret Ballot.’ *American Political Science Review*, 102: 19–31.

⁸ Robinson, J. A. and T. Verdier. 2013. ‘The Political Economy of Clientelism.’ *Scandinavian Journal of Economics*, 115(2): 260–291.

⁹ Nichter. ‘Vote Buying or Turnout Buying? Machine Politics and the Secret Ballot.’

¹⁰ Ibid.

¹¹ Stokes, S. C. 2005. ‘Perverse Accountability: A Formal Model of Machine Politics with Evidence from Argentina.’ *American Political Science Review*, 99(3): 315–325.

¹² Corstange. ‘Vote Trafficking in Lebanon.’

¹³ See for example: Cox, G. W. and J. M. Kousser. 1981. ‘Turnout and Rural Corruption: New York as a Test Case’, *American Journal of Political Science*, 25: 646–63; and Stokes. ‘Perverse Accountability: A Formal Model of Machine Politics with Evidence from Argentina.’

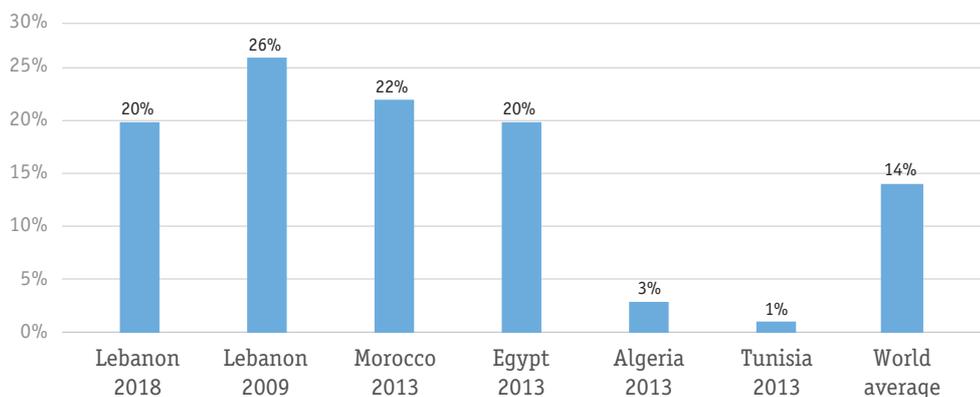
¹⁴ For example, Nichter. ‘Vote Buying or Turnout Buying? Machine Politics and the Secret Ballot’ provides empirical evidence in the context of the Argentinian elections in favor of the prevalence of turnout buying.

which politicians provide discretionary private or local public goods or privileges to particular groups of citizens, in exchange for their votes and support. Therefore, short-term vote buying transactions often coexist with other forms of longer-term clientelistic relations which result in a social obligation of voting for patrons.¹⁶ Moreover, elections can reinforce the patron-client relationship by regularizing payment transactions.¹⁷ There is evidence that in countries where non-programmatic political parties dominate, as it is the case in Lebanon where sectarian cleavages trump programs, vote buying is more prevalent.¹⁸

The Extent of Vote Buying in the 2018 Parliamentary Elections

According to the 2018 LPOS survey results, about 20% of Lebanese acknowledge having received a handout before the elections in exchange for their votes. To put this into perspective, we can compare the rate of self-reported vote buying with other elections both in Lebanon and across the Arab world. Muhtadi (2019) collected results from different surveys on vote buying in developing countries' democracies.¹⁹ In order to facilitate the comparison, the author restricts the sample for surveys where they ask a similar direct question on whether the respondent received payments or gifts in exchange for their votes. Figure 1 summarizes the results for a subset of elections held in other Arab countries. The extent of vote buying in the 2018 Lebanese elections is as large as in some countries like Egypt or Morocco, but significantly lower than in Tunisia or Algeria. Compared to the overall average in elections in developing countries, vote buying in Lebanon seems to be more frequent (20% compared to 14%). In Lebanon, Corstange (2012) estimated that the presence of self-reported vote buying in the elections of 2009 stood at 26% which, if taken at face value, would suggest a slight decline between 2009 and 2018.²⁰

Figure 1 Average self-reported vote buying in different elections in the Arab world



Sources LPOS (2018) for the 2018 Lebanese elections, Corstange (2012) for the 2009 Lebanese elections, and Muhtadi (2019) for the other elections.

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Referred to in the broad sense including not just vote buying, but also turnout buying and abstention buying.

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Cammet, M., D. Kruszewska, and S. Atallah. May 5, 2018. 'What Lebanon's Elections Can Teach Us about the Importance of Religion.' *Washington Post*.

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Magaloni, B. 2006. *Voting for Autocracy*. New York: Cambridge University Press, 19; and Corstange. 'Vote Trafficking in Lebanon.'

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Kitschelt, H. 2000 'Linkages Between Citizens and Politicians in Democratic Polities.' *Comparative Political Studies*, 33: 845-879.

19

Muhtadi B. 2019. 'The Prevalence of Vote Buying in Indonesia: Building an Index.' In *Vote Buying in Indonesia*. Palgrave Macmillan, Singapore.

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Corstange. 'Vote Trafficking in Lebanon.'

21

Bradburn, N., S. Sudman, E. Blair, and C. Stocking. 1978. 'Question Threat and Response Bias.' *Public Opinion Quarterly*, 42(2): 221–34.

22

Brusco, V., M. Nazareno, and S.C. Stokes. 2004. 'Vote buying in Argentina.' *Latin American Research Review*, 39(2): 66–88.

However, surveys that ask about these kinds of behaviors—whether legal or illegal—as it is the case with vote buying, suffer from what social scientists call 'social desirability' biases.²¹ In other words, some respondents try to present themselves in more favorable terms and avoid responding to sensitive questions truthfully when they have engaged in a negative or stigmatized behavior.

In order to mitigate this problem, Brusco, Nazareno, and Stokes (2004) rely on more indirect questions such as asking about the presence of vote buying in the neighborhood instead of directly asking whether the respondent received a handout or not.²² They suggest that the true level of vote buying may fall in the range bounded by the individual and the neighborhood questions. According to the 2018 LPOS survey, when respondents are asked about the presence of vote buying in the neighborhood instead of their direct implication, we estimate that the presence of vote buying reached 40% in the 2018 elections which doubles the rate obtained through the individual measure. Part of this gap can be driven by the fact that even if a small fraction of a neighborhood is offered a handout, a larger number of its residents can observe these few transactions. Since many neighbors can see one neighbor receiving a handout, most would say they saw this type of corruption in their neighborhood. On top of this, the gap between individual and neighborhood assessment of vote buying indicates the biases against self-reporting this stigmatized behavior.

Gonzalez-Ocantos et al. (2012) provide some evidence that the neighborhood questions to approximate vote buying, even if they reduce the bias, might still underestimate vote buying, at least in the context of the Nicaraguan local elections of 2008, and propose instead to have respondents list experiments where surveyors are divided into a control and a treatment group and are asked about the number of campaign activities that they observed. On top of the number of response options that the control group has, the treatment group has one additional question about vote buying. This way, the question does not ask respondents to reveal to the interviewer the presence of vote buying, but is rather indirectly obtained by subtracting the mean number of options selected by the control group from the one obtained in the treatment group, inducing true responses.²³ In the same vein, Corstange (2012) uses a list experiment and shows that when asked indirectly, vote buying in the 2009 Lebanese elections reached 55%, compared to 26% when asked directly.²⁴ Unfortunately, it was not possible to use list experiments with the LPOS survey to better estimate the true extent of vote buying in the 2018 Lebanese elections. Still, if we consider that evidence shows that the neighborhood variable still provides a lower bound, and that the comparison of the direct measure shows a larger proportion of vote

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Gonzalez-Ocantos, E., C. De Jonge, C. Meléndez, J. Osorio, and D. Nickerson. 2012. 'Vote Buying and Social Desirability Bias: Experimental Evidence from Nicaragua.' *American Journal of Political Science*, 56 (1): 202–217.

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Corstange. 'Vote Trafficking in Lebanon.'

buying in 2009 than in 2018, we can approximate the true extent of vote buying in the 2018 elections to be in the range between 40% and 55%. These results are indicative of the notable presence of vote buying in the electoral process in Lebanon.

Who Do Political Parties and Brokers Target When Buying Votes?

In order for vote trafficking to work, citizens have to credibly commit to the agreement and politicians have to be able to monitor or infer their electoral behavior and be able to credibly threaten to punish those who do not stick to their agreements.²⁵ The capacity to punish is much higher in regions where long-term clientelistic relations are prevalent, as it is the case in Lebanon. Furthermore, the Lebanese electoral system facilitates politicians' and middlemen's monitoring of voters' actions, even though changes in the electoral law were made to reduce it, such as banning the option to bring pre-printed ballots that were usually distributed by parties and had salient visual differences for easy monitoring. Still, voters have to vote in their village of origin, and are divided in many instances by sect and gender. This allows politicians to more easily infer their constituents' voting patterns.

Besides this monitoring system, political parties target voters who would be more likely to be induced to vote in certain ways by monetary incentives. The literature on the determinants of vote buying has mostly focused on socio-economic characteristics of those targeted by the political machinery.²⁶ For example, Stokes et al. (2013) and Dixit and Londregan (1996) find that vote buying tends to be more prevalent among low-income people for whom small economic transactions can be more effective for mobilizing their electoral support given their larger marginal utility of income.²⁷

In the LPOS, income levels can be inferred by a self-reported question on the subjective level of economic means.²⁸ When splitting the sample by income levels, results show that low-income individuals in Lebanon were more likely to report receiving handouts in exchange of their vote or observing vote buying in their neighborhood in the run up to the 2018 general elections compared to wealthier voters (figure 2).

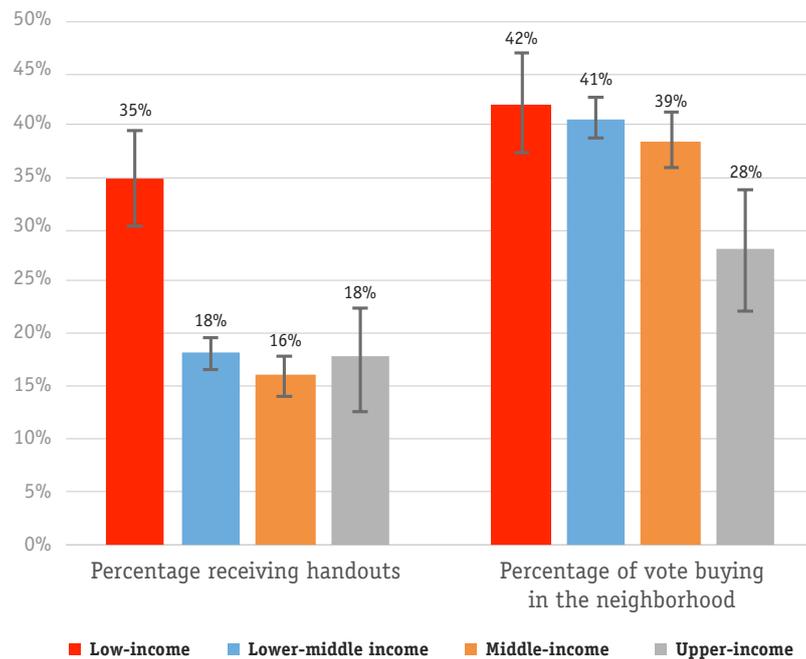
25
Ibid.

26
Stokes. 'Perverse Accountability: A Formal Model of Machine Politics with Evidence from Argentina'; and Brusco, Nazareno, and Stokes. 'Vote buying in Argentina.'

27
Stokes, S. C., T. Dunning, M. Nazareno, and V. Brusco. 2013. *Brokers, Voters, and Clientelism: The Puzzle of Distributive Politics*. New York, NY: Cambridge University Press; and Dixit, A., and J. Londregan. 1996. 'The Determinants of Success of Special Interests in Redistributive Politics.' *The Journal of Politics*, 58: 1132-55.

28
The options were: 1) I have trouble feeding myself and my family and buying even the most essential things for survival; 2) I have enough means for survival, but I do not have enough money to buy extra things; 3) I am able to afford things like new clothes and eating at restaurants but not often; 4) I am able to afford things like new clothes and eating out and also support other members of my family who are not able to do these things.

Figure 2 Prevalence of vote buying by income levels



Source LPOS (2018).

Note 95% confidence intervals are included in order to assess whether differences are statistically significant or not.

Beyond income levels, previous research has shown which types of voters are more likely to be targeted with respect to their level of attachment to a party. As previously mentioned, parties can target weakly committed supporters to make sure they vote ('turnout buying'), swing voters to make sure they vote for their party ('vote buying'), or weakly committed supporters of other parties to prevent them from casting their ballot ('abstention buying'). They wouldn't be targeting strong supporters, who would vote for the party anyway even without receiving payment and thus the transactions would not induce a change in behavior. According to Corstange (2012), there is anecdotal evidence that political parties engaged in all the three types of transactions in the 2009 Lebanese general elections.²⁹

The 2018 LPOS survey sheds light on the type of voter that political machineries target. In line with the 'turnout buying,' voters that did not vote in the 2009 elections were significantly less likely to report having received handouts in the run up to the 2018 elections compared to those who did vote in 2009 (figure 3). While 21% of Lebanese who voted in 2009 reported having received handouts before the 2018 elections, only 12% of those who did not cast a ballot in 2009, and were within legal voting age, reported so. The bulk of vote buying in 2018 went to party supporters ('loyal voters') that had already voted for the party in the past election (about half of

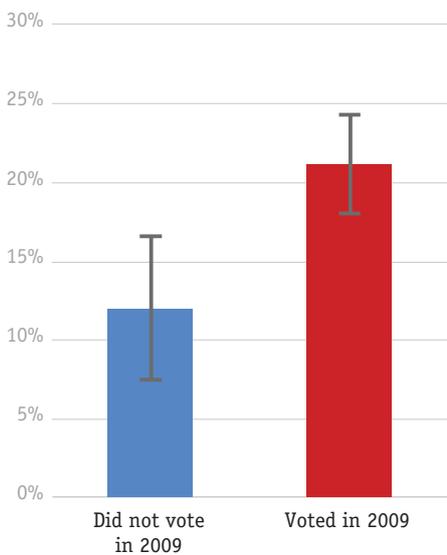
²⁹ Corstange. 'Vote Trafficking in Lebanon.'

the cases) (figure 3.b). This finding supports the prevalence of the ‘turnout buying’ model over the ‘vote buying’ model. The second major targeted group were first-time voters (21-29 years old) in an effort from parties to politically engage with this new group of voters who, in general, felt more disenfranchised and disconnected from politics and had a lower turnout rate than the older population.³⁰ Only 4% of vote buying were received by swing voters—those who voted for different parties in both elections. This accounts for the difficulty and economic cost of convincing supporters of a party to change their vote, and even if they did so, for the challenges in monitoring swing voters and determine whether they voted and for whom.

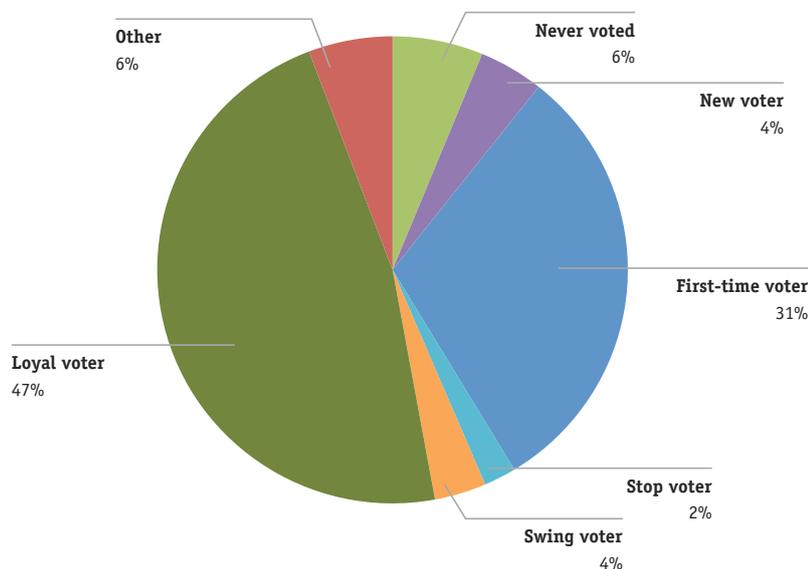
30 See Garrote-Sanchez and Mourad (2019) for evidence on lower participation of Lebanese youth in the 2018 elections.

Figure 3 Vote buying in the 2018 elections by type of voter

a Percentage of vote buying in 2018 divided according to having voted in 2009 or not



b Share of vote buying in the 2018 elections



Source LPOS (2018).

Notes 95% confidence intervals are reported to assess whether the differences are statistically significant. 'Never voted' are those within the legal age to vote that neither voted in 2009 nor in 2018; 'New voter' are those that did not vote in 2009 although they were of legal age and who voted in 2018; 'First-time voters' are 21-29 years old so were legally able to vote in 2018 but not in 2009; 'Stop voters' are those who voted in 2009 but not in 2018; 'Swing voters' are those who voted for a different party in 2009 and 2018; 'Loyal voters' are those who voted for the same party in both elections.

Parties focus on voters who have inclinations to vote for them but are just weakly committed to vote, so an economic incentive can solidify their decision to go to the polling booth and vote. The concentration of vote buying among supporters suggests that members affiliated to political parties are significantly more likely to recognize having received gifts in exchange of their vote (figure 4). This could just be a report bias, as members of political parties might feel less stigmatized when recognizing vote buying. However, the same gap is observed when using the more indirect measure of vote buying in their neighborhoods, which provides further robustness to the argument of political parties targeting supporters.

Another important trait of individuals more likely to be targeted by political parties is the sense of reciprocity.³¹ Finan and Schechter (2012) examined why vote buying is sustained since, once the handout is delivered, brokers and politicians at most have imperfect information on voters' actions. They argue that those transactions are maintained at least in part due to individuals' feelings of 'intrinsic reciprocity,' as voters who are offered gifts experience satisfaction in reciprocating and favoring those politicians who helped them. However, those reciprocity traits are different across individuals. Based on an experiment, Finan and Schechter show that middlemen are significantly more likely to target reciprocal individuals, which is possible in the context of small or cohesive groups where everyone know each other well.³²

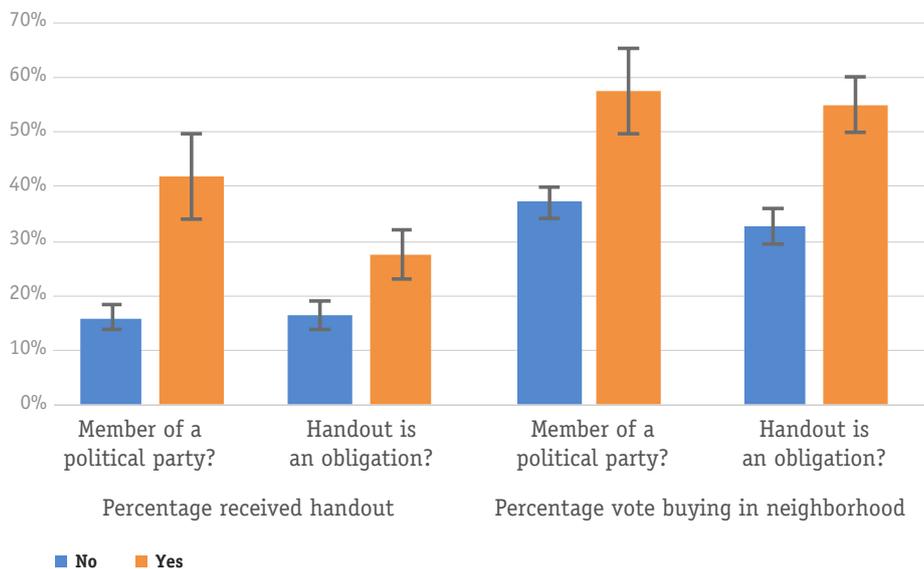
Given the division along sectarian lines and the extent of long-term clientelistic transactions, Lebanon has the potential to offer those conditions for politicians to know who to target accordingly. The LPOS survey asked respondents whether receiving a handout would entail any sense of moral obligation to reciprocate toward the politicians behind the handout. The survey showed that if individuals felt that handouts carried a moral obligation toward the politician, this increased the likelihood of receiving a handout by about 70% in both measures of vote buying (figure 4).³³ This provides suggestive evidence of politicians being able to target voters who show traits of intrinsic reciprocity, which partially compensates the inability to fully monitor voters' electoral behaviors.

³¹ Finan, F., and L. Schechter. 2012. 'Vote-Buying and Reciprocity.' *Econometrica*, 80 (2): 863-881.

³² Ibid.

³³ It increases from 16% to 27% in the individual direct question and from 32% to 55% in the indirect neighborhood question

Figure 4 Prevalence of vote buying by membership status in political parties and traits of reciprocity



Source LPOS (2018).

Note 95% confidence intervals are included in order to assess whether differences are statistically significant or not.

Based on a multivariate regression analysis, we can study the main characteristics that make voters a target of vote buying once controlling for other factors. Annex 1 provides the results of which types of voters were more likely to report having received a handout based on a series of individual and regional characteristics.³⁴ While we observe some differences by sect, mainly lower levels of reported vote buying among Maronite or Druze compared to Sunnis, Corstange (2012) shows that the higher reported vote buying among the Sunni community is not matched with a real higher prevalence of this phenomenon, but rather it is due to a higher willingness to admit it.³⁵ In line with the descriptive analysis above, there are four main characteristics or behaviors of voters that make them more likely to receive a handout. Voters that are poor, those who voted in the past elections, those associated with political parties (and are party supporters), and voters who have reciprocity traits are the focus of the vote buying machinery, as politicians assess that their handouts are more likely to consolidate and leverage their vote.

³⁴ These are: Age, gender, marital status, education levels, status in the labor market, income situation, region of residence, sect, level of sectarian identity, political networks and membership in political parties, traits of reciprocity, or whether they voted in the 2009 elections or not. The dependent variable is the direct measure of whether a person received a handout or not, although using the indirect measure of vote buying in the neighborhood does not significantly change the results. Given the dependent variable is a dummy taking either value 1 (if received a handout) or 0 (if not received any handout), we use logit models.

³⁵ Corstange. 'Vote Trafficking in Lebanon.'

III Indirect Measures of Voter Rigging and Vote Buying

Assessing the extent of vote trafficking in elections is a difficult endeavor given the illegal nature of the transaction that is often finalized behind closed doors. In the previous section we used a nationally representative survey of citizens to infer the presence of vote buying in the 2018 Lebanese general elections, and highlighted how widespread the phenomenon is, while pointing toward the limitations of those estimates based on survey data.

Another branch of the literature on vote buying has used administrative data on the election results to infer the presence of irregularities related to voter rigging and persuasion before or during the election day. In general, studies rely on different characteristics of voting centers that shape the ability of politicians and their intermediaries (middlemen and brokers) to monitor voters' behavior. In a recent paper on elections in Mexico, Larreguy et al. (2016) observe higher turnout rates and share of vote for the two main parties (PRI and PAN) in voting centers where politicians and brokers have a better monitoring capacity.³⁶ In order to assess the monitoring capacity of a polling station, they rely on exogenous variations in the number of polling stations per electoral precinct as a result of an electoral rule requiring the creation of a new polling station for every 750 registered voters. Comparing those precincts just below the cutoff with those above it,³⁷ they find that smaller polling stations facilitate the capacity of brokers and politicians to monitor voters as they can infer more information about voting patterns and, as a result, are more likely to engage in vote buying exchanges before the elections. It is important to note that, while they do not observe irregularities and vote trafficking directly, they use cues of how aggregate voting behaviors differ when otherwise similar polling stations only differ by their size. The observed patterns of higher turnout and votes for the leading parties suggests the presence of vote buying. In the context of Colombian elections, Rueda (2017) also showed that precincts and polling stations with fewer registered voters are more prone to vote trafficking using monitors' and citizens' reports of electoral manipulation and survey data.³⁸

Therefore, vote trafficking is more likely to happen when politicians and middlemen can better infer voters' choices, which tend to occur in smaller and more homogeneous polling stations where constituents are more easily identifiable. By the own nature of its electoral system's structure, Lebanon is well suited to allow vote trafficking to flourish, as voters are usually divided in polling stations according to their confession and gender and are required to vote in their village of origin.

³⁶ Larreguy, H., J. Marshall, and P. Querubin. 2016. 'Parties, Brokers, and Voter Mobilization: How Turnout Buying Depends Upon the Party's Capacity to Monitor Brokers.' *American Political Science Review*, 110(1): 160-179.

³⁷ The former have, on average, a significantly larger size of polling stations.

³⁸ Rueda, M. R. 2017. 'Small Aggregates, Big Manipulation: Vote Buying Enforcement and Collective Monitoring.' *American Journal of Political Science*, 61(1): 163-177.

Analyzing the Relation Between the Size of Polling Stations and Electoral Outcomes in Lebanon

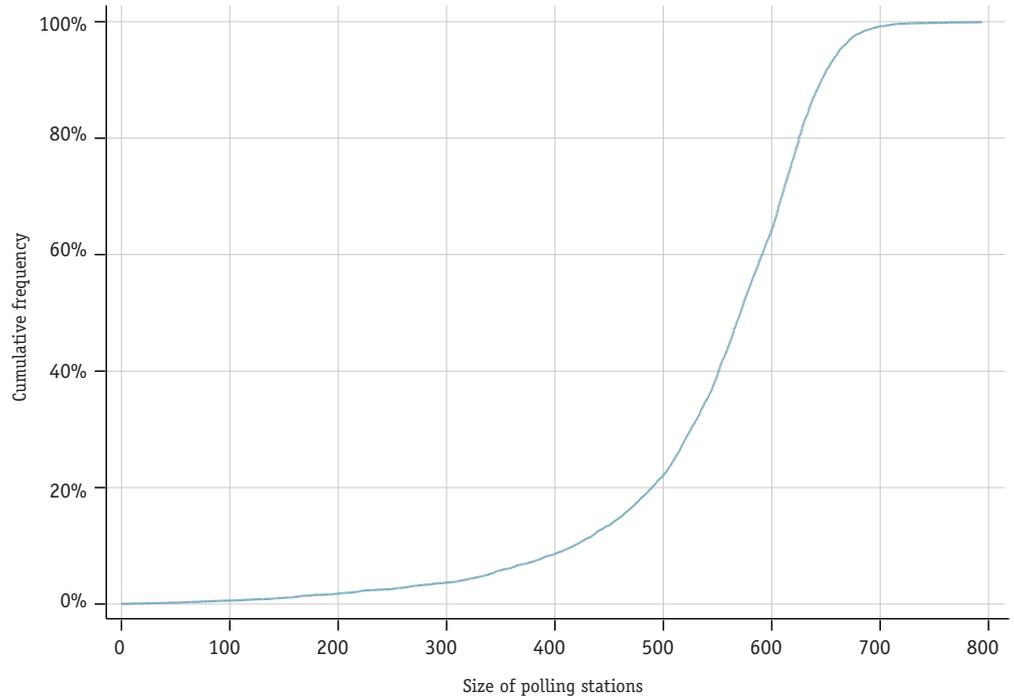
In the 2018 Lebanese elections, there were a total of 6,781 polling stations³⁹ with an average size of 547 voters, accounting for the more than 3.7 million domestic registered voters. However, there was a large variation in the size of polling stations across and within electoral districts. Figure 5.a shows the cumulative distribution of polling stations by size, that is, the percentage of voting centers with the maximum number of registered voters in them—recorded in the x-axis. For example, about 10% had 400 or fewer registered voters, while close to half of the centers serviced between 500 and 600 voters. These differences were partly driven by the variations between electoral district (figure 5.b), ranging from an average above 600 voters in North 2 (Tripoli, Minnieh, and Dannieh) and Beirut 2, to 465 in Mount Lebanon 1 (Keserwan and Jbeil) and 475 in North 3 (Batroun, Bcharre, Koura, and Zgharta).

According to the article 85 of the 2017 Parliamentary Elections' Law, 'The electoral constituency shall be divided by virtue of a decision of the [Interior] Minister to several polling centers that contain several polling stations.' While giving the authority to the Ministry of Interior to decide how to divide electoral districts into polling centers, the article provides some guidelines: 'Every village containing between 100 and 400 voters shall have one polling station. More than 400 voters may be assigned to one polling station if so required for ensuring the integrity of the electoral process, provided that the number of voters per polling station does not exceed 600 voters'. Therefore, the law sets a limit on the maximum size of a polling station to 600 voters. However, we observe that about one third of polling stations in the country contained more than 600 voters (figure 5.a).

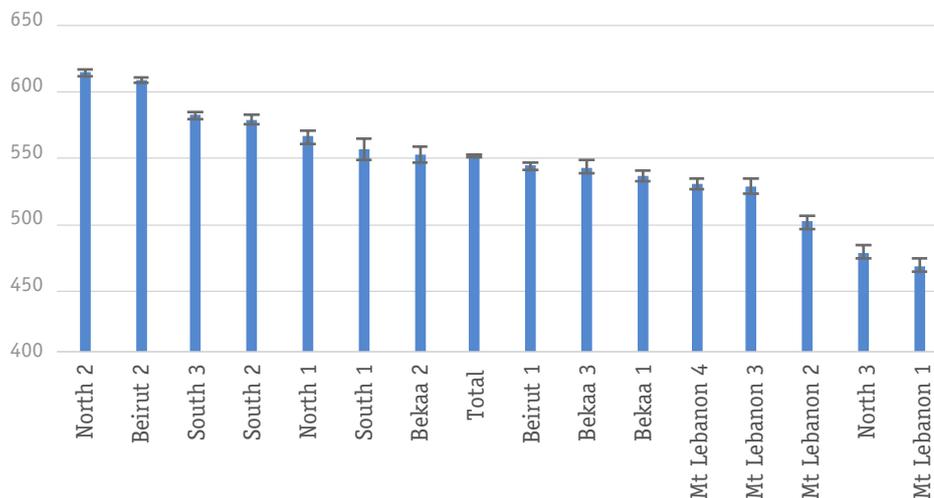
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This number does not include the centers that received the votes from the Lebanese diaspora overseas.

Figure 5 Distribution of polling stations by size

a Cumulative distribution of polling stations



b Average polling station size by electoral district



Source Own calculations based on the Ministry of Interior 2018 national elections data.

Note This analysis excludes centers that collected votes from voters in the diaspora.

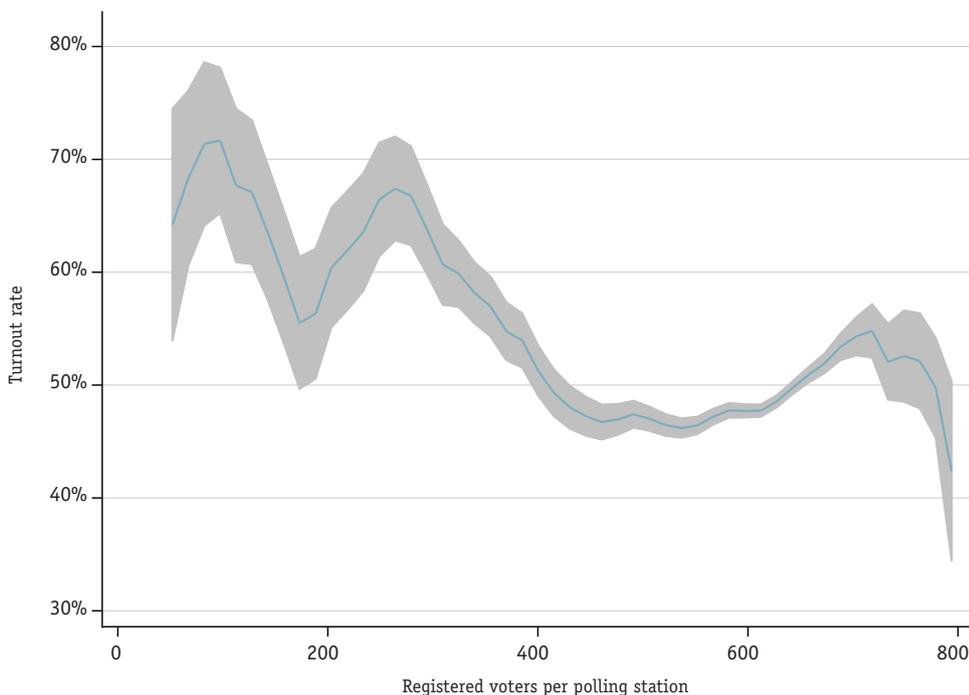
Figure 6.b shows the correlation between the size of a polling station and the average turnout as well as the 95% confidence intervals to assess the statistical significance. In the most frequent size of polling stations (in the range of 400 to 600 registered voters), turnout rates remained relatively constant below 50%, in line with the

national average. However, among polling stations with a size of less than 400 voters, turnout rapidly increases, hitting the 70% mark in small polling stations of about 100 voters. The presence of abnormally higher turnout rates in small voting centers provides initial evidence of turnout buying or other pressures on voters to vote given the higher capacity to monitor whether voters cast their ballots.

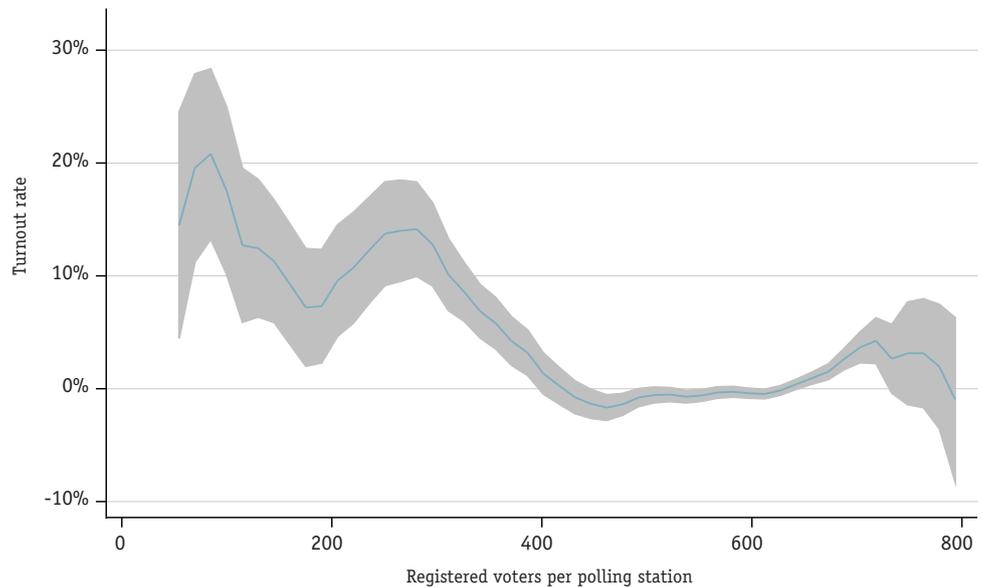
Nevertheless, given the specificities of how voters were allocated by sectarian background and the differences in electoral behavior across electoral districts, the higher turnout in small centers could be due to the fact that specific confessional groups with different turnout rates were more likely to be clustered in smaller centers. In order to control for that, we constructed a new measure of turnout rate in comparison to the average for all the polling stations of voters with the same confessional background and in the same electoral district. For example, if a polling station of Shia voters in Baalbek-Hermel had an average turnout rate of 60% while the average of all polling stations with Shia voters in that same electoral district was 50%, then the new measure would have a value of 10% (above the mean). For polling stations with 400 to 600 registered voters, results show that turnout rates are in line with the average for the confession in the district (figure 6.b). Once the size of a polling station is reduced to 300 voters, turnout rates are significantly higher, about 10% above the average for a given sect in a given electoral district, and further increase to close to 20% higher in small polling centers of 100 voters.

Figure 6 Turnout rates by size of the polling station

a Raw turnout rates



b Turnout rates compared to the mean per district and sect



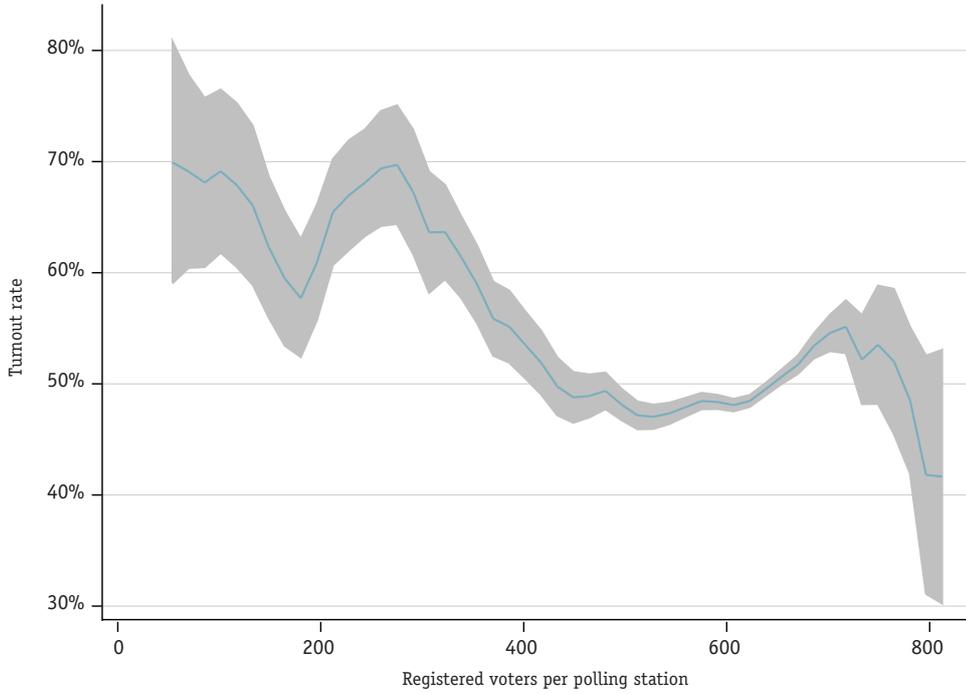
Source Own calculations based on the Ministry of Interior 2018 national elections data.

Notes 95% confidence intervals are included for statistical comparison.

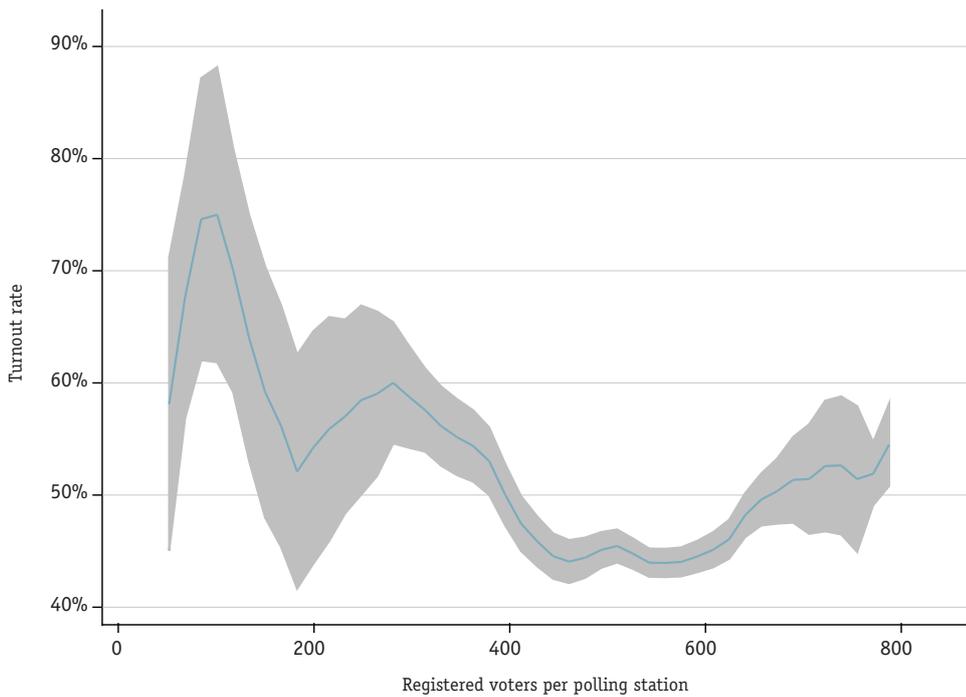
We can also assess whether other characteristics of polling stations that facilitated politicians and middlemen to infer voters' actions influence turnout rates. As the electoral system in Lebanon is structured around sectarian cleavages, brokers and middlemen working for politicians have different constituents in many cases based on areas and sect. In this context, for any given size of a polling station, the more confessionally homogeneous it is, the easier it is for brokers to identify voting patterns. When splitting polling stations between homogeneous and mixed-sect centers in the 2018 Lebanese national elections, we find that turnout rates are significantly higher for the former (50%) than the latter (46%). More importantly, we also observe that the negative correlation between the size of polling stations and turnout is stronger in homogeneous polling centers compared to mixed-sect centers (figure 7), as expected in the presence of voter rigging that is more likely to happen in small and homogeneous centers.

Figure 7 Correlation between the size of polling stations and turnout rates by type of center

a Polling station size and turnout rate in homogeneous center



b Polling station size and turnout rate in mixed centers



Source Own calculations based on the Ministry of Interior 2018 national elections data.

Notes 95% confidence intervals are included for statistical comparison.

Even after taking into consideration the differences in turnout due to specificities of electoral districts and the different electoral mobilization that each confession had, the negative correlation between the size of the polling station and turnout could be due to other factors that are not related to ‘turnout buying.’ For example, as per the electoral law, rural areas with more than 100 voters can have their own polling station. That means that small areas will tend to have smaller polling stations. Therefore, it could be that the negative relation is due to other factors such as rurality which exists alongside lower economic development and more sectarian homogeneity, all potential drivers of turnout.

In order to tease out the impact of the polling stations’ size on turnout, we compiled a rich dataset with potential explanatory variables of turnout. From the Ministry of Interior’s data, we have the gender of voters in each polling station,⁴⁰ their confession,⁴¹ and the electoral district where they voted from. We also collected data on characteristics of the municipality where voters were registered: (i) The level of economic development, approximated by the night-time light intensity;⁴² (ii) the incidence of poverty, proxied by the ratio of beneficiaries of the National Poverty Targeting Program (NPTP) over the population in the municipality;⁴³ (iii) the level of sectarian homogeneity;⁴⁴ and (iv) the size of the refugee population over the domestic registered voters.⁴⁵ Even after controlling for all those factors, we found that the smaller the polling station, the greater the turnout rate (figure 8). Compared to the average polling station of 547 voters, a small polling station of about 250 voters had a turnout 10% higher and those with 100 voters more than 20% higher. These results provide strong evidence of the presence of voter rigging (pressures to vote or vote trafficking) in the 2018 Lebanese elections. Politicians and middlemen were able to better monitor voters in small polling centers and, as a result, these centers were more likely to suffer from vote trafficking that resulted in higher than normal turnout rates.

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Either all females, all males, or mixed.

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Similarly, polling stations can contain only voters for one identifiable sect or mixed.

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Obtained from the National Oceanic and Atmospheric Administration. Different studies have shown the value of using this data to estimate economic activity in areas where other data are not available. See: Henderson, J. V., A. Storeygard, and D. N. Weil. 2011. ‘A Bright Idea for Measuring Economic Growth.’ *American Economic Review*, 101(3): 194–199; Henderson, J. V., A. Storeygard, and D. N. Weil. 2012. ‘Measuring Economic Growth from Outer Space.’ *American economic review*, 102(2): 994–1028; and Chen, X., and W. D. Nordhaus. 2011. ‘Using Luminosity Data as a Proxy for Economic Statistics.’ *Proceedings of the National Academy of Sciences*, 108(21): 8589–8594.

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Data on NPTP beneficiaries was obtained from the Ministry of Social Affairs.

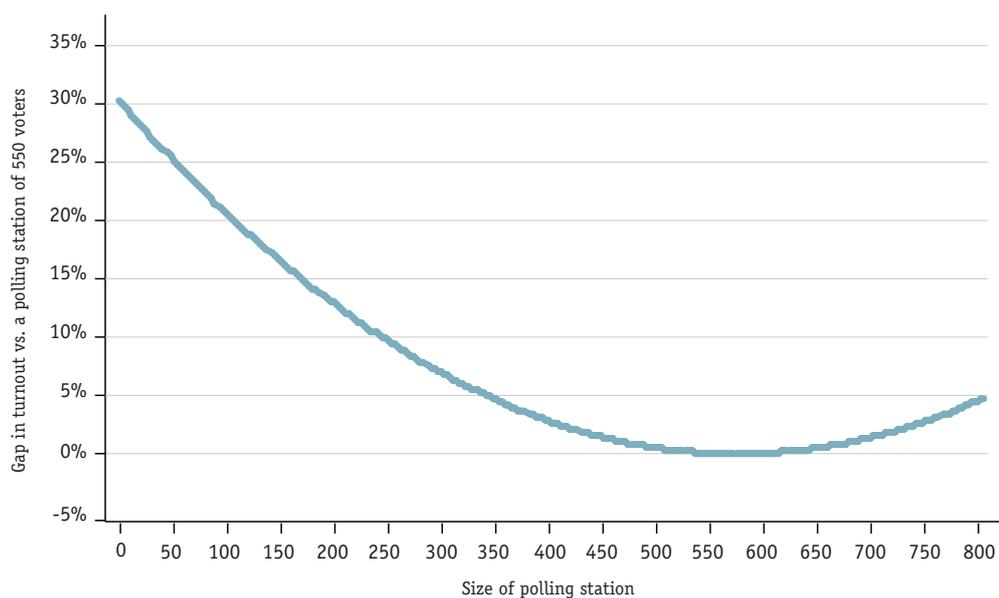
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Based on electoral data on the sect of voters per polling station, we constructed an index of homogeneity $HI = \sum s_i^2$, that is, the sum of the squares of each sect’s share of voters in the municipality. The index ranges between 0 (when the municipality is fully heterogeneous) and 1 (when the municipality is fully homogeneous).

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Data on the refugee population is collected from UNHCR.

Figure 8 The impact of polling station size on turnout



Source Own calculations based on multivariate regression analysis.

Notes Results are based on regression analysis after controlling for individual characteristics of voters (gender and sect), characteristics of municipalities where voters were registered (economic development, poverty, local and refugee population, and sectarian homogeneity), and electoral district dummies.

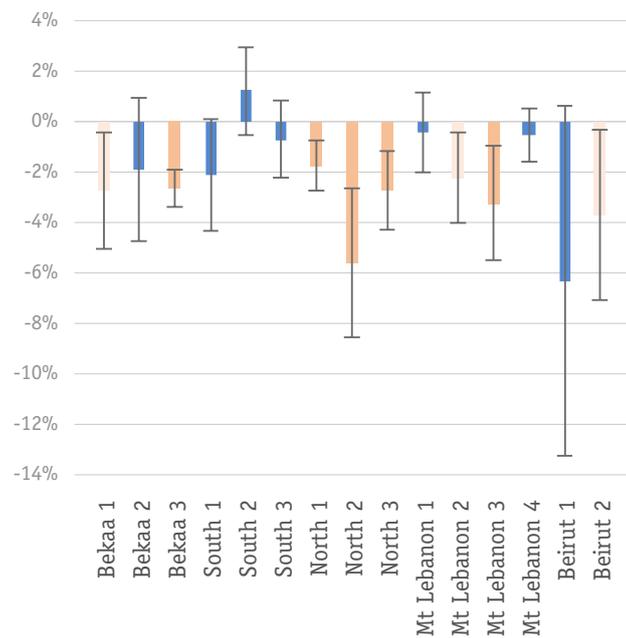
The suggestive evidence of vote rigging through the negative association between the size of the polling station and turnout is not homogeneous across electoral districts and confessions. Based on regression analysis that compare the size of the polling station with electoral districts, we found that the districts most prone to vote trafficking were Bekaa 3 (Baalbek-Hermel), North 2 (Tripoli, Minnieh, and Dannieh), North 3 (Batroun, Bcharre, Koura, and Zgharta), North 1 (Akkar) and Mount Lebanon 3 (Baabda) (figure 9.a). Other district with weaker signs of irregularities were Bekaa 1 (Zahle), Mount Lebanon 2 (Metn) and Beirut 2. However, we were not able to find a significant correlation between the size of the polling station and turnout rates in any of the three districts in the South, in Mount Lebanon 1 (Keserwan and Jbeil), Mount Lebanon 4 (Aley and Chouf), Beirut 1, or Bekaa 2 (West Bekaa–Rachaya). It is important to note that these results take into consideration all the other voter and municipal-level characteristics, so the observed regional disparities do not reflect, for example, changes in the sectarian composition across districts.

When looking at the impact of the size of polling stations on turnout across confessions, we found the strongest correlation in Sunni polling stations, followed by Shia centers (figure 9.b). In Maronite polling stations, the association was smaller and much weaker, while it was not significant for other minority sects. Similar

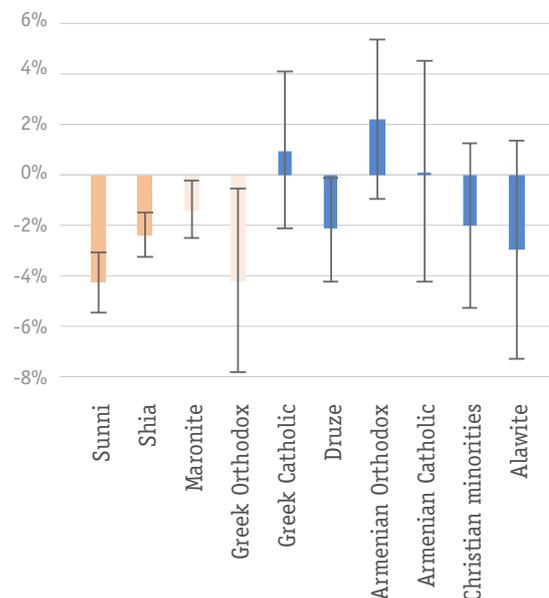
to the analysis per district, these results by confession control for all other characteristics, including geographical differences, so they can be interpreted as variations across sects and not the other underlying factors. Therefore, we found suggestive evidence of stronger voter irregularities for Sunni constituents, lesser irregularities for Maronites and no irregularities for minority groups.

Figure 9 Implicit measure of voter rigging

a By electoral district



b By confession



Source Own calculations based on multivariate regression analysis.

Notes Results are based on regression analysis after controlling for individual characteristics of voters (gender and sect), characteristics of municipalities where voters were registered (economic development, poverty, local and refugee population, and sectarian homogeneity), and electoral district dummies. We allow the coefficient on the impact of the size of a polling station on turnout to vary across districts and sects with interaction terms.

Who Benefited from High Turnout?

In the previous sections we provided suggestive evidence on the large presence of vote buying through both survey data (approximately about 40-55% of voters) and through indirect inference of electoral data by which small and homogeneous polling stations exhibit significantly higher turnout rates. This form of vote trafficking called ‘turnout buying’ is characterized by political parties focusing their efforts in bribing voters in order to cast their ballots and then provide an irregular boost in turnout in the affected areas.

In this section, we evaluate the main beneficiaries of abnormally high turnout rates in specific centers, which could be due to different types of electoral irregularities, not just vote buying (related to voter rigging), but also ballot stuffing in the elections’ day before the counting of votes (vote rigging). Ballot stuffing happens when a number of fake ballots for a specific party are added to the ballot box. As opposed to vote buying, middlemen involved in these irregularities do not interact with voters but affect the number of votes and its composition before the counting process. Whether a party engages in voter rigging or vote rigging, one should observe that both the turnout rate and the percentage of votes that the party received increase in those voting centers where irregularities occur.⁴⁶ Therefore, a strong positive correlation between turnout and the percentage of votes that a party receives can be indicative of electoral fraud in its favor. Myagkov, Ordeshook, and Shakin (2009) argue that there should not be a significant relationship between turnout rates and vote counts for a given candidate in ‘clean’ elections.⁴⁷

Evaluating the correlation between turnout rates and vote counts is straightforward in countries where a strong incumbent dominates in most regions. However, by the nature of the Lebanese political landscape where different parties have their geographical strongholds, it is harder to detect these types of irregularities at the national level. To overcome this challenge, instead of focusing on individual parties we use three different measures to assess the potential correlation: (i) The percentage of votes that all winning candidates obtained (regardless of the list they ran in); (ii) the percentage of votes for the winning list in each district; and (iii) the percentage of votes for the incumbent party (i.e. the party or coalition of parties that won the seats in the 2009 elections) which tends to be more inclined to use vote buying in order to preserve its power in weak democracies.⁴⁸

46 See, for example, Buzin, A. and A. Lubarev. 2008. *Crime Without Punishment: Administrative Technologies of Federal Elections of 2007-2008*. Moscow: Nikkolo M; Myagkov, M., P.C. Ordeshook, and D. Shakin. 2009. *The Forensics of Election Fraud*. Cambridge University Press; or Levin, I., G. A. Cohn, P. C. Ordeshook, and R. Michael Alvarez. 2009. ‘Detecting Voter Fraud in an Electronic Voting Context: An Analysis of the Unlimited Reelection Vote in Venezuela.’

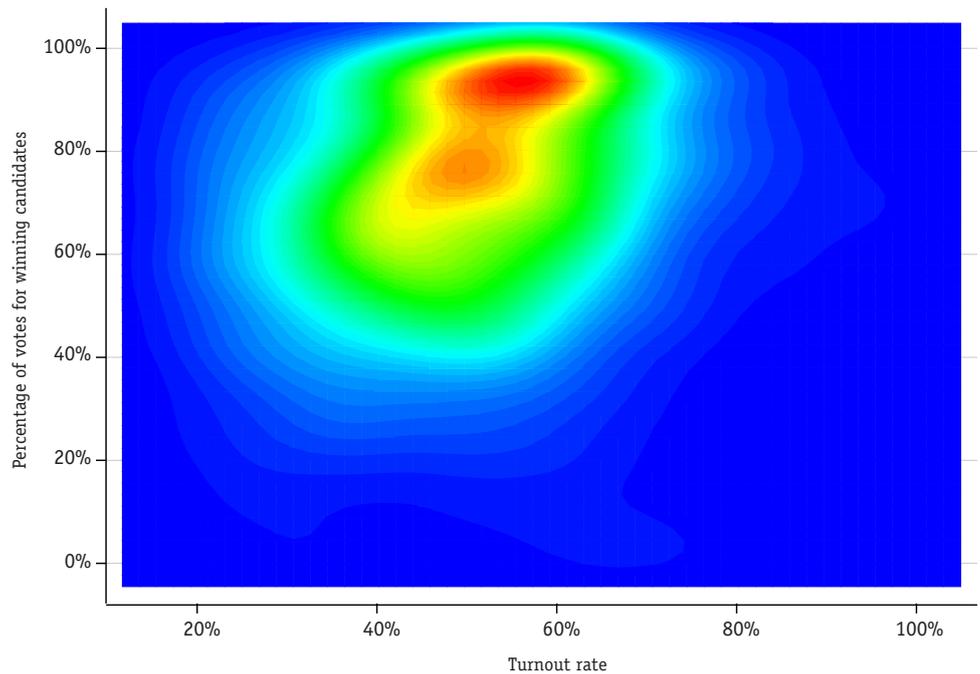
47 Myagkov, Ordeshook, and Shakin. 2009. *The Forensics of Election Fraud*.

48 Cruz, C., P. Keefer, and J. Labonne. 2015. ‘Incumbent Advantage, Voter Information, and Vote Buying.’ Working Paper.

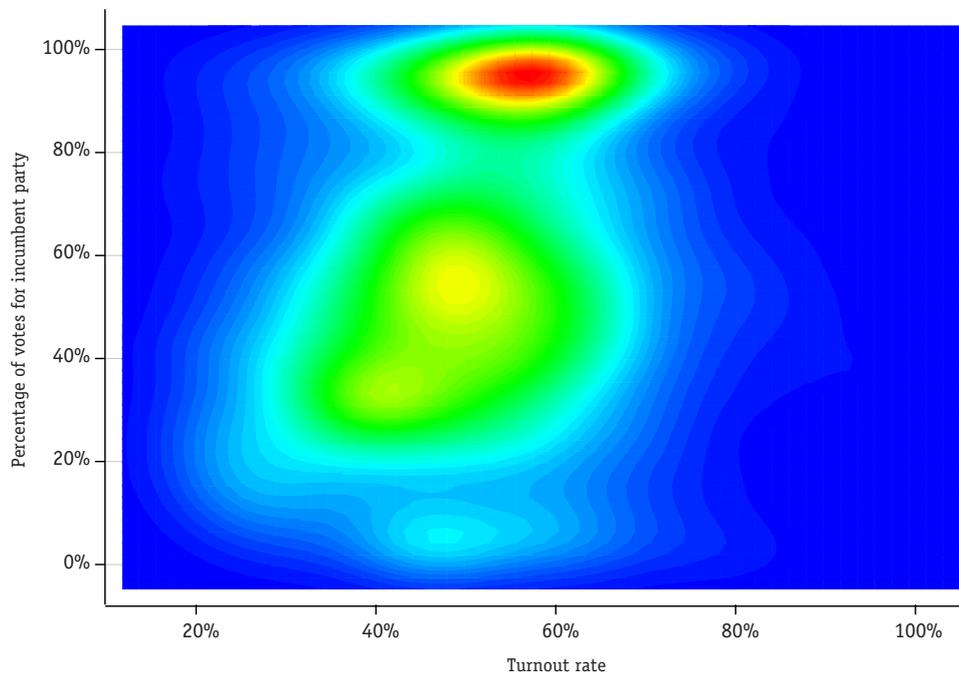
The results show a clear pattern, with higher turnout rates benefiting incumbent parties and the candidates that ended up winning the seats in each district in the 2018 elections. Figure 10 provides two-dimensional graphs with the joint distribution of turnout rates and share of votes for either the winning candidates (figure 10.a) or the incumbents (figure 10.b) in each polling station. Red colors represent the most frequent combination of turnout and share of votes, followed by orange, yellow, green and, finally, blue. If there were no correlation between the two, we should observe a vertical or horizontal line. On the contrary though, we find a clear diagonal and upward slope path by which the higher turnout a polling station has, the larger the share of votes for the winning candidates—who tend to be from the incumbent parties.

Figure 10 Two-dimensional frequency distribution between turnout rates and percentage of voters for winning candidates or incumbent party

a Turnout and percentage of vote for winning candidate



b Turnout and percentage of vote for incumbent party



Source Own calculations based on the Ministry of Interior's 2018 national elections data.

Notes The vertical axes show the share of votes for either the winning candidates in each district or the incumbent list. The horizontal axes show the turnout rates. Red areas are the most frequent combination of share of votes and turnout rates, followed by orange, yellow, green and then blue.

The relation between turnout and the share of votes for winning candidates and lists is endogenous, as more political competition increases turnout, based on our observations in previous chapters and controlling for other factors. Nevertheless, when taking into consideration this potential bias, the results we obtain can be seen as a lower bound; in other words, the real impact would be even more beneficial for winning lists. However, there are other biases that can appear, and that should be taken into consideration. For example, a specific confession might be more politically engaged and, at the same time, more willing to vote for a specific sectarian candidate. That would generate a positive correlation between turnout and the share of votes for that party that does not necessarily entail any irregularity in the election process.

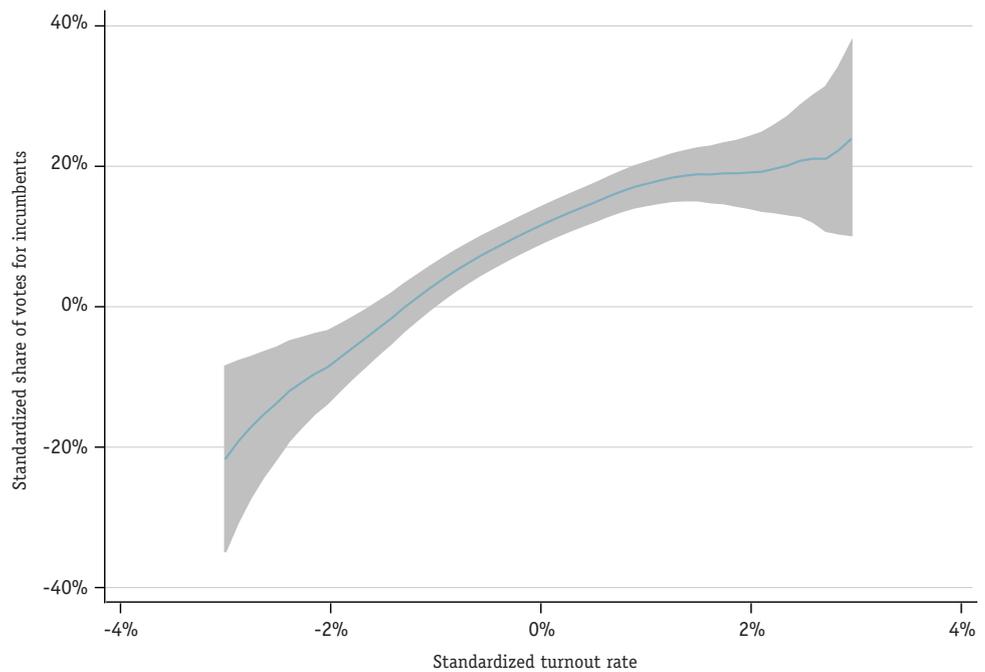
In order to take into consideration differences across confessions and electoral districts, we created standardized variables of turnout rates and percentage of votes for both incumbent parties and winning lists. For any polling station, the standardized turnout rate would be the turnout rate in the specific polling station minus the average turnout rate of all polling stations in the district with registered

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Myagkov, Ordeshook, and
Shakin. *The Forensics of
Election Fraud*.

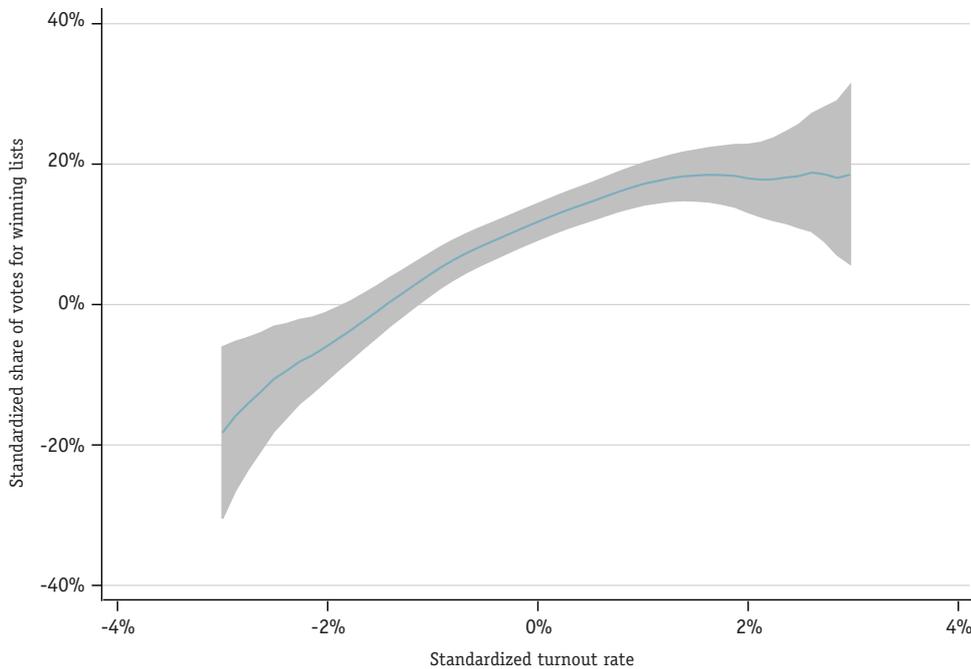
voters from the same sect, all of it divided by the variability (standard deviation) of the turnout rates in those centers. This measures how abnormally low or high the turnout is in a polling station compared to all other centers within the same sect and district. The standardized measures of share of votes for incumbent parties and winning lists followed the same procedure. As argued by Myagkov, Ordeshook, and Shakin (2009), we should not see any clear relation between the two variables in 'clean' elections.⁴⁹ Strikingly, we found that the higher the turnout in a polling station, the larger the unexpected share of votes incumbent parties and winning lists received (figure 11).

Figure 11 Turnout and distribution of votes when compared to same sect and district polling stations

a Turnout rates and share of votes for incumbent parties



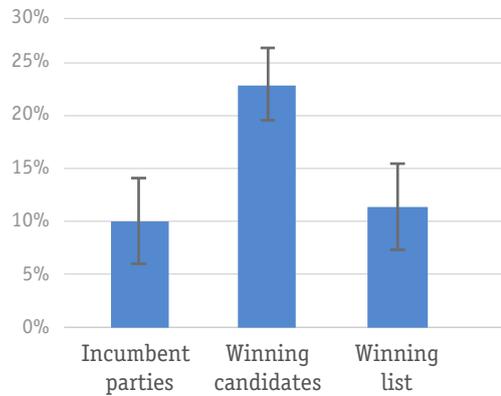
b Turnout rates and share of votes for winning lists



Source Own calculations based on the Ministry of Interior's elections data.

In order to control for other potential variations in polling station, we used a multivariate regression analysis to understand the impact of turnout rates in the prevalence of votes for winning lists, winning candidates, or incumbent parties. Similar to the previous section, we controlled for a set of voters' backgrounds (gender and sect), municipality characteristics (local and Syrian population, economic development, poverty incidence, and sectarian homogeneity), and district level specificities (like the political competitiveness). Results show a robust evidence on the beneficial impact of turnout on incumbent parties and on winning candidates overall. For example, controlling for all other variations in polling centers, an increase of 1% in turnout led to a 0.23% increase in the share of votes that winning candidates received (figure 12). An increase of 10-20% in turnout we observed in small polling stations would then entail a rise in the percentage of votes for winners by 2.3-4.6%.

Figure 12 Impact of turnout on the distribution of votes based on multivariate analysis



Source Own calculations based on multivariate regression analysis.

Note Results based on regression analysis after controlling for personal background of voters (gender and sect), characteristics of municipalities where voters are registered (economic development, poverty, local and refugee population, and sectarian homogeneity), and electoral district dummies.

Therefore, we observed odd patterns of turnout across voting centers where abnormally high turnout centers benefited winning candidates and lists that tend to be the incumbents. This provides further suggestive evidence of irregularities in the 2018 elections. However, the type of irregularity is harder to clarify. It could be ex-post voting fraud such as ballot stuffing (where ballots for one party are added to the ballot box and/or votes for other parties are taken away), or it could be subtler ways such as pressuring voters to vote or buying their vote (voter rigging), which in both cases would increase turnout and the percentage of votes for winning candidates or lists.

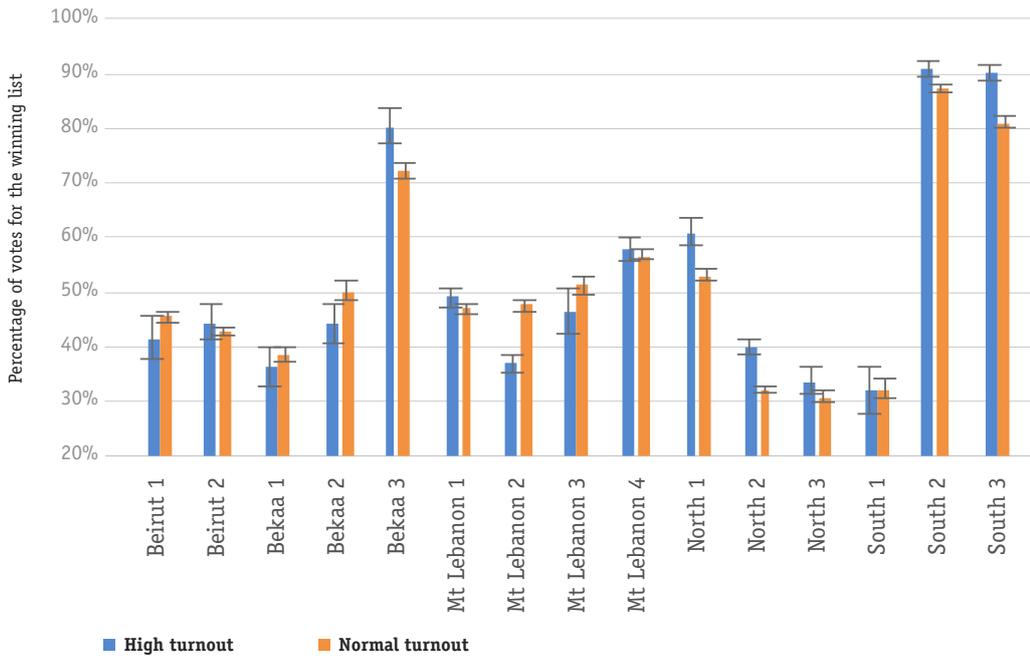
High turnout rates did not always benefit winning lists, depending on the level of political competitiveness in the district. In those districts where the winning list obtained the highest share of votes, such as South 2 (Sour and Zahrani), South 3 (Bint Jbeil, Marjayoun-Hasbaya, and Nabatiyeh), Bekaa 3 (Baalbek-Hermel), or North 1 (Akkar), abnormally high turnout rates⁵⁰ further boosted their results (figure 13.a). In contrast, in other districts, winners did not systematically benefit from high turnout and, in some cases, this actually worked to their disadvantage. In order to formally assess the different trends across various levels of political competition in each district, we split districts between 'politically competitive' and 'non-politically competitive,' where the cutoff line between the two is 50% of the votes going to the winning list. Under this condition, politically competitive districts do not show any significant variation in the share of votes going to the winning list in centers with abnormally high turnout, while it increases their electoral results by 5% in non-competitive districts (figure 13.b). A very similar picture

⁵⁰ Measured by those voting centers with a turnout rate of at least one standard deviation higher than the mean in the district for centers with the same sectarian composition.

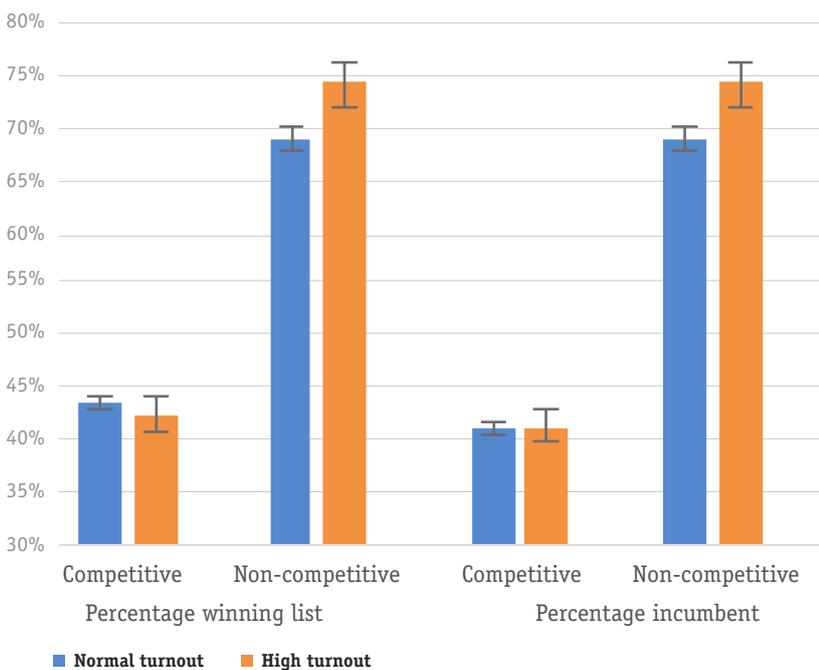
emerges when looking at the share of votes for the incumbent parties which, in most instances, won the seat and got re-elected.

Figure 13 Cross-district evidence on how turnout rates affected winning lists

a Differences by electoral district



b Differences by political competitiveness in districts



Source Own calculations based on the Ministry of Interior's electoral data.

Notes **High turnout centers** are those that had turnout rates with one or more standard deviations above the average in the district of centers with the same sectarian composition. A district is considered **competitive (non-competitive)** if the winning list received less (or more) than 50% of the votes.

At the level of individual parties, it is hard to find evidence at the national level, as political parties have different strongholds but do not usually have a majoritarian role in all electoral districts. Therefore, some parties might try to influence voters to different degrees (if any) depending on the district. This analysis is thus most suited at the district level.⁵¹ At the national level, we compare results for each party in abnormally high turnout centers⁵² with ‘normal’ turnout centers, focusing only on those centers where each party was present, by obtaining at least one vote. Hezbollah, Amal Movement, Future Movement, and to a lesser extent, Kataeb, obtained significantly higher percentages of votes in high turnout centers (figure 14.a). Most other sectarian parties do not show significant differences. These results could be partly driven by the political competitiveness in each political party’s stronghold. As we previously highlighted, winning lists benefited from high turnout in districts where there was lower political competitiveness, and so they have a large majority and could obtain a higher share of seats. In most instances, this argument matches, as Amal and Hezbollah were the winning lists in the low politically competitive districts of South 2 (Sour and Zahrani), South 3 (Bint Jbeil, Marjayoun-Hasbaya, and Nabatiyeh), and Bekaa 3 (Baalbek-Hermel), whereas the Future Movement was the winning list in North 1 (Akkar).

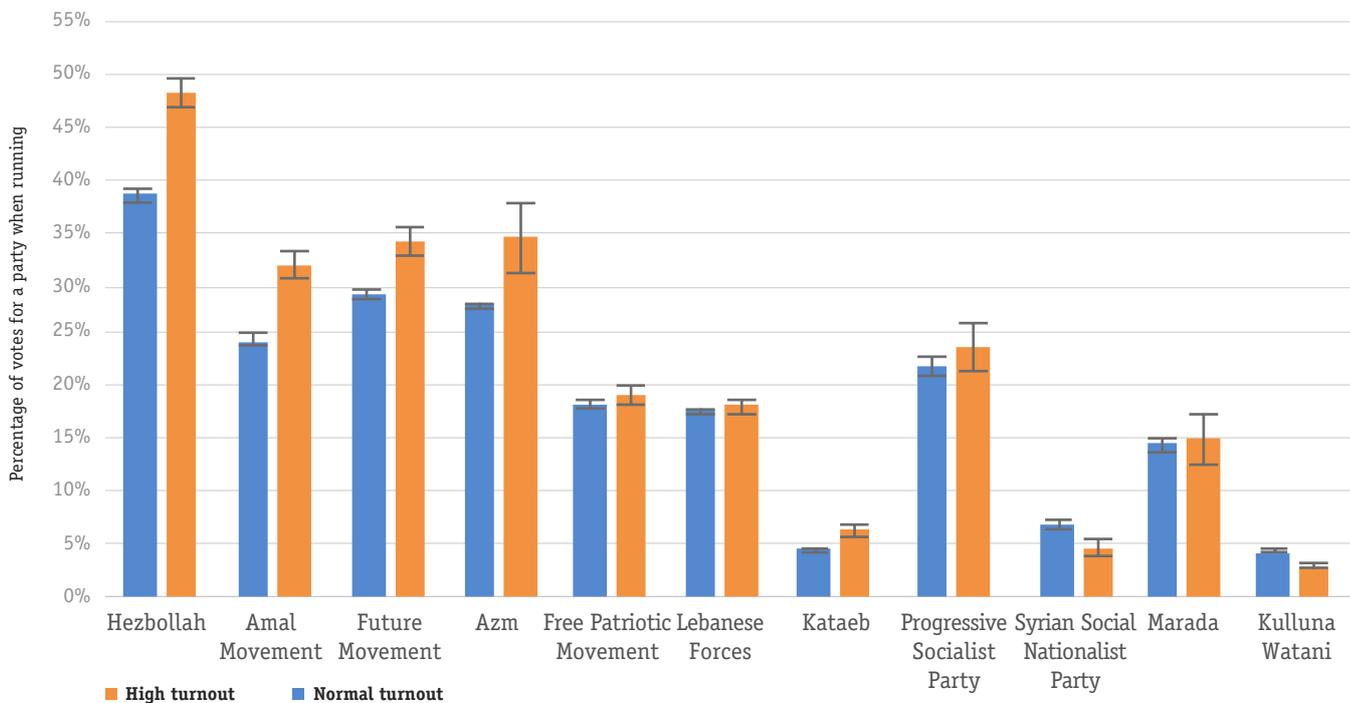
As traditional parties—in particular, incumbent parties—seem to have benefited from abnormal increases in turnout rates, at least in non-politically competitive districts where irregularities such as vote buying or ballot stuffing could be more rampant, the other side of the coin portrays civil society movements as the clear losers when irregularities occur. In particular, Kulluna Watani obtained worse results in polling stations with higher mobilization and turnout. In polling stations where turnout rates were similar to the average of other polling stations in the district with the same sectarian composition, Kulluna Watani obtained more than 4% of votes, a share that was progressively reduced to below 3% in polling stations with two standard deviations above the mean—so, abnormally high mobilization (figure 14).

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For an analysis of how vote irregularities impact individual parties, see the accompanying documents on the 2018 general elections at the district level.

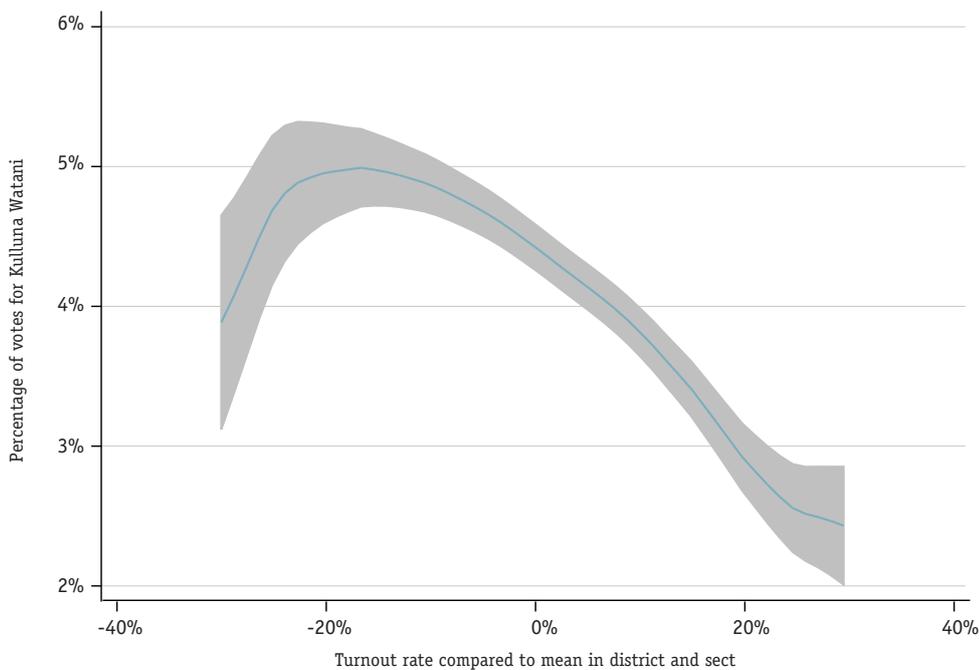
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Measured by those polling stations that had at least a one standard deviation above the mean of all polling stations in the same district with the same sectarian profile.

Figure 14 Who benefited from high electoral mobilization?

a Share of votes for individual parties by turnout



b Share of votes for Kulluna Watani by turnout



Source Own calculations based on the Ministry of Interior's electoral data.

Notes High turnout centers are those that had turnout rates with one or more standard deviations above the average in the district of centers with the same sectarian composition.

IV Inferring Vote Rigging in the 2018 National Elections

There is an abundance of ways of tampering elections. In the previous sections, we have provided some suggestive evidence that points toward pressures to vote, including vote buying, and some oddities in polling stations with abnormally high turnout that benefited the main winning lists. Most of the evidence we present of vote buying occurred before the actual election, although the last analysis on the correlations between turnout and votes for winning lists could also be due to ballot stuffing—which occurs after the election time was over and prior to the counting of votes. In this section we try to approximate whether there were also irregularities in the 2018 general elections during the counting process. These types of irregularities are different from vote buying as they do not involve illicit transactions inciting voters to change their voting behavior, but they rather entail changing the vote count directly without any interaction with voters. In any case, they represent a strong violation of voters' will, weakening the democratic process. In the absence of direct evidence, we use statistical tools to infer the presence of any oddity with two main procedures. First, we study invalid vote counts to diagnose possible irregularities related to ballot stuffing. Second, we use digit tests to assess whether there were irregular manual changes in the vote counts during the aggregation process.

Examining the Presence of Ballot Stuffing Using Electoral Data on Null Votes

One way of testing whether there are signs of ballot stuffing is to see how the percentage of null votes⁵³ correlates with turnout and the percentage of votes that the party suspected of irregularities obtained. Previous evidence shows that when political parties add ballots they tend to forget to include a similar proportion of invalid votes.⁵⁴ Therefore, an irregular behavior would entail a low percentage of invalid votes combined with a high turnout and a high percentage of votes for the list we think could have manipulated the vote count through careless ballot box stuffing. However, the mere negative correlation is not enough to suggest ballot stuffing, as invalid votes could sometimes simply be protest votes. If that were the case, we could expect a negative correlation between party vote shares and the proportion of null votes without seeing irregularities. Therefore, we can only be confident that there was ballot stuffing if the increase in the proportion of votes for the list is actually larger than the percentage of null votes.

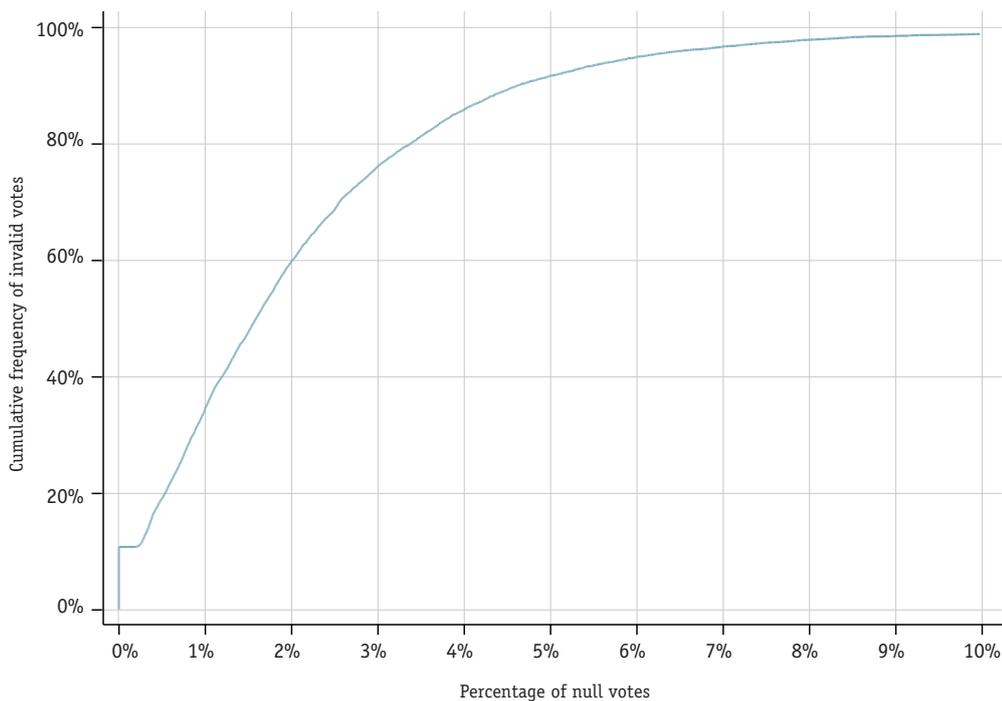
⁵³ In voting, a ballot is considered null, spoiled, or invalid if an election authority determines that it is invalid under the law and thus is not counted.

⁵⁴ Mebane, Jr., W. R. 2010. "Fraud in the 2009 Presidential Election in Iran?" *Chance*, 23: 6–15.

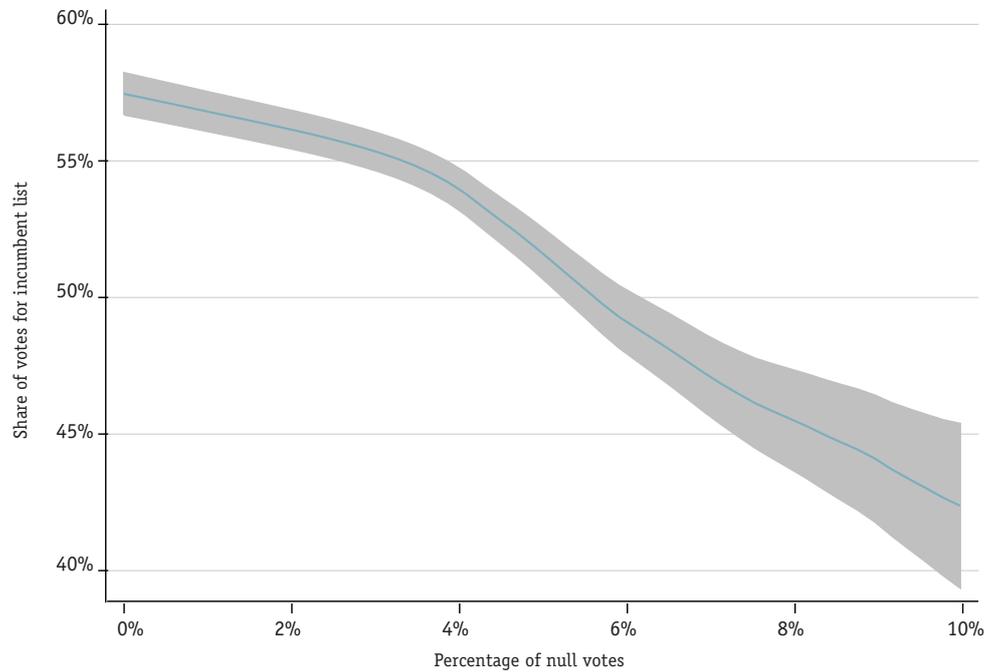
Based on this election forensic, we observed signs of ballot stuffing at the national level in the 2018 elections that benefited incumbent lists in each district. Figure 15.b exhibits the cumulative distribution of the prevalence of invalid votes, in other words, the percentage of polling stations that had at least the share of null votes as marked in the x-axis. We excluded from the analysis polling stations with less than 50 registered voters to avoid outliers given their small size. From the graph we see that the median polling station had about 1.5% of invalid votes and in 10% of them the share of null votes was 5% or more. While the graph exhibits almost a smooth curve, we find an abrupt pattern wherein 10% of polling stations had not one invalid vote.

Figure 15 Distribution of invalid votes across polling stations and voting patterns for incumbent lists

a Cumulative distribution of invalid votes



b Null votes and votes for incumbent lists

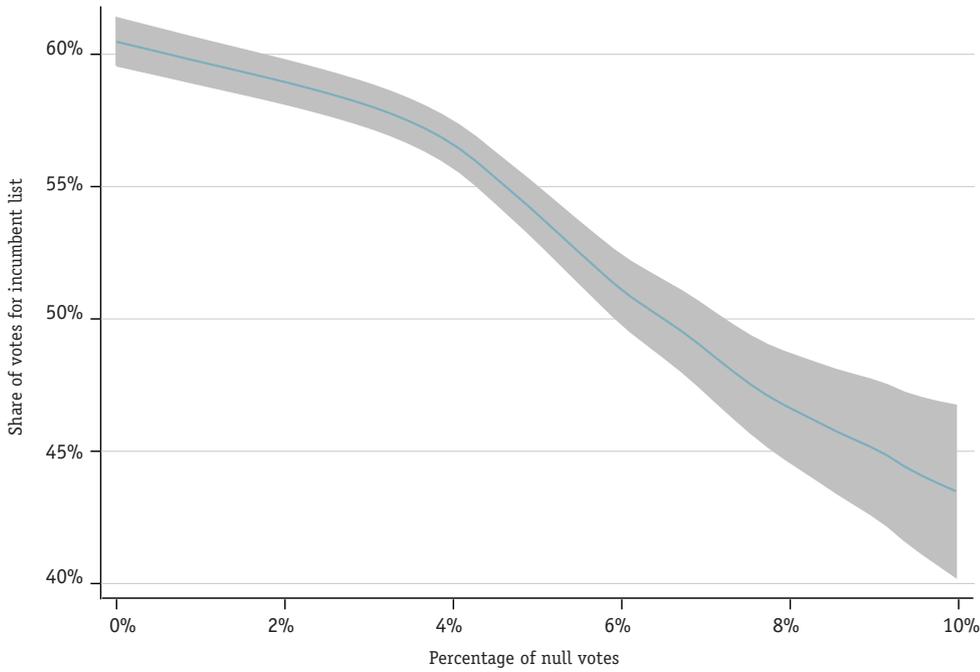


Source Own calculations based on the Ministry of Interior's electoral data.

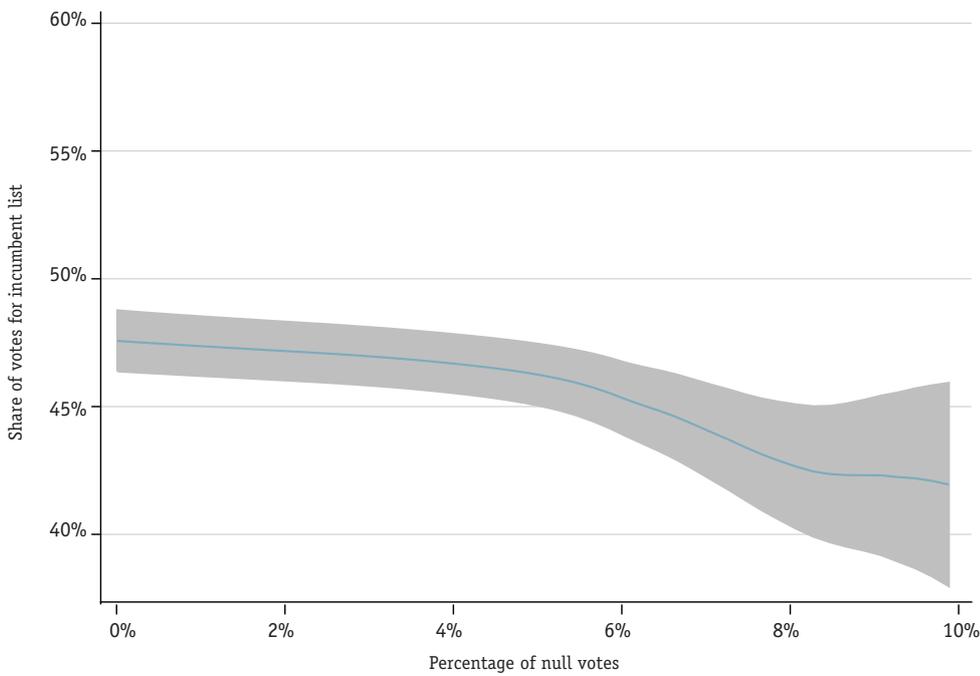
More importantly, we found a strong negative correlation between the share of null votes in a polling station and the share of votes that incumbent lists obtained (figure 15.b). We can be confident that these patterns are not solely due to 'protest votes'. A reduction in the share of null votes from 10% to 0% would entail, at most, a 10% increase in the share of votes for the incumbent parties given the 'protest' vote, while we observe an increase in the vote share of 15% instead (from 42.5% to 57.5%). Moreover, when we split the centers between homogeneous and mixed polling stations in terms of sect, we find that the abnormal patterns are only observed in homogeneous centers that are more likely to be strongholds for sectarian parties (figure 16).

Figure 16 Correlation between invalid votes and results of incumbents in homogeneous and mixed centers

a Homogeneous polling stations



b Mixed polling stations

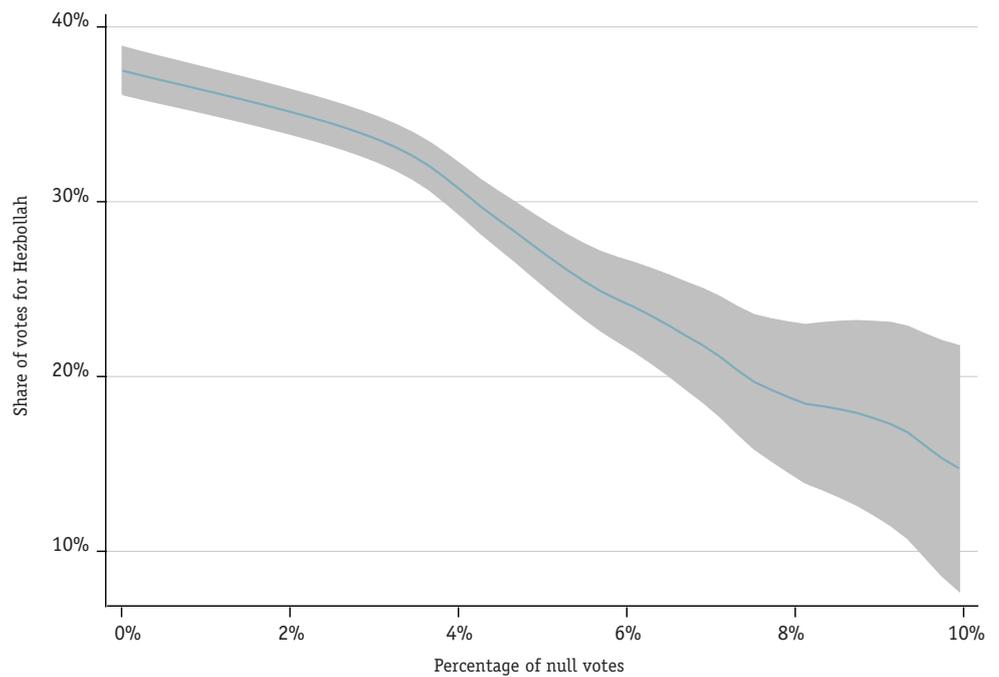


Source Own calculations based on the Ministry of Interior's electoral data.

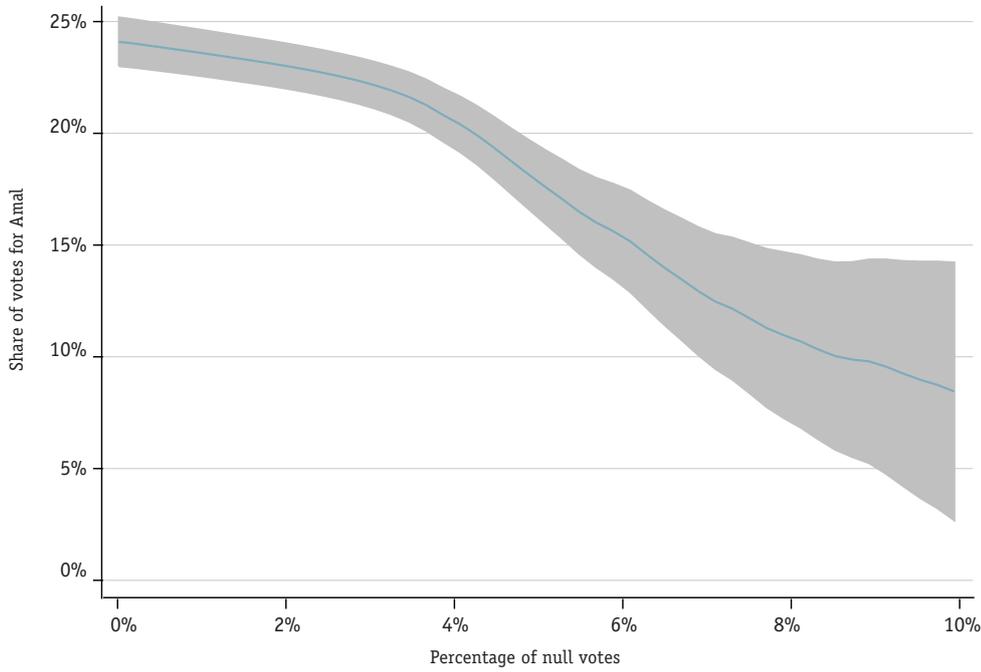
At the national level, the strong, negative correlation between the share of null votes and the support for a specific party is only observed with Hezbollah, Amal, and the Progressive Socialist Party (figure 17). However, there are large variations in the structure of electoral processes across districts that have a differential impact on political parties. As such, the observed correlations cannot be seen as strong enough evidence of ballot stuffing for those individual parties. In order to account for all other differences in voters' background and characteristics of municipalities and districts, we use multivariate regression analysis as in previous sections. When taking into consideration all those other differences, the reduction in the share of null votes only has statistically significant impact on increasing the votes for Hezbollah, the Future Movement, and the Lebanese Forces.

Figure 17 Null votes and support for individual parties

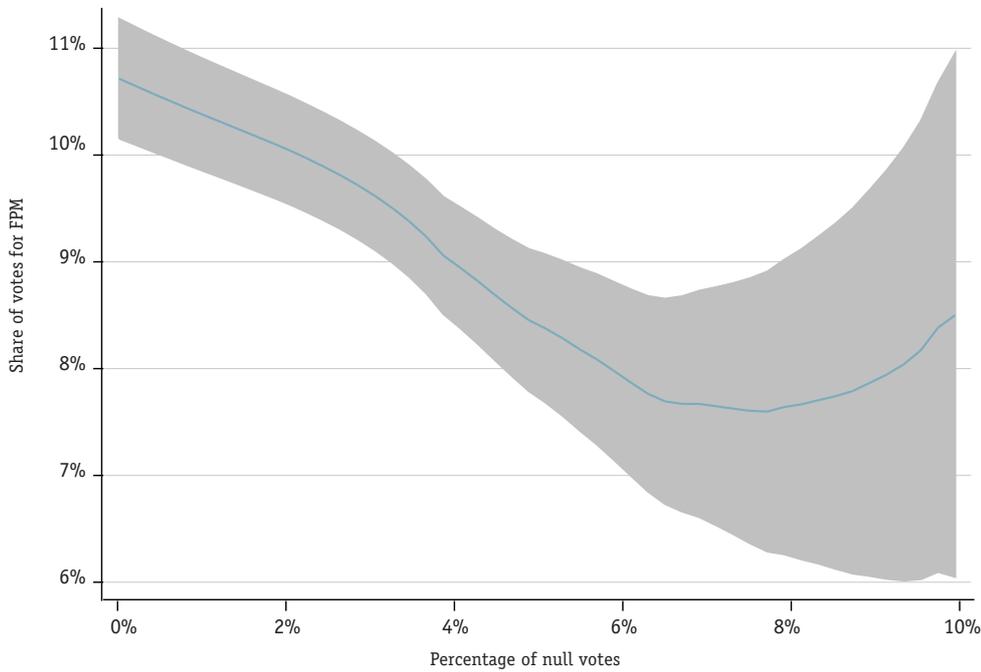
a **Null votes and support for Hezbollah**



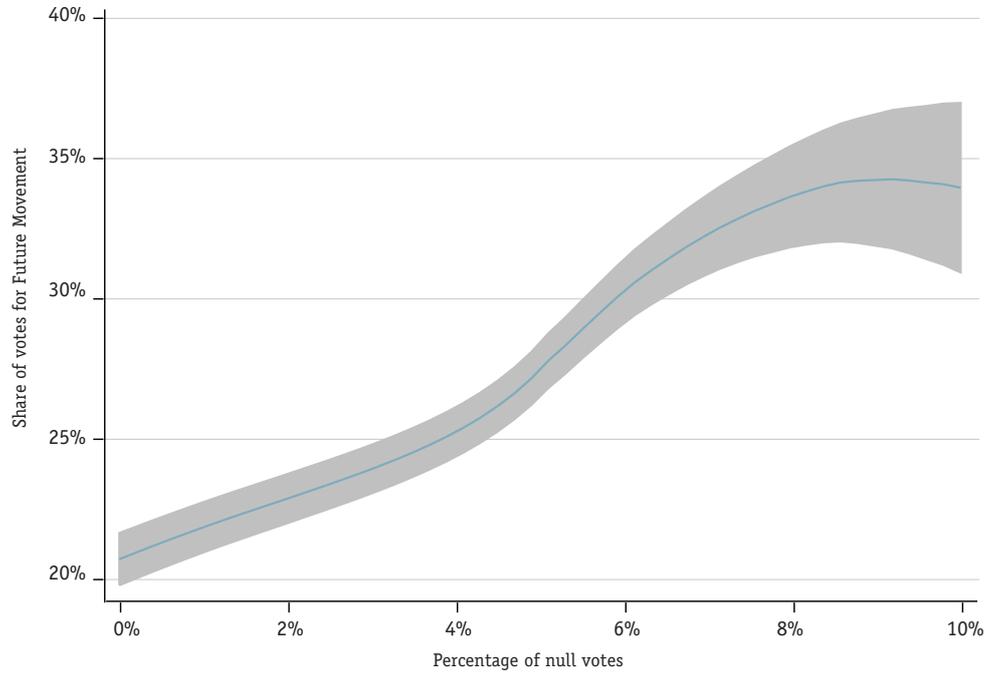
b Null votes and support for Amal



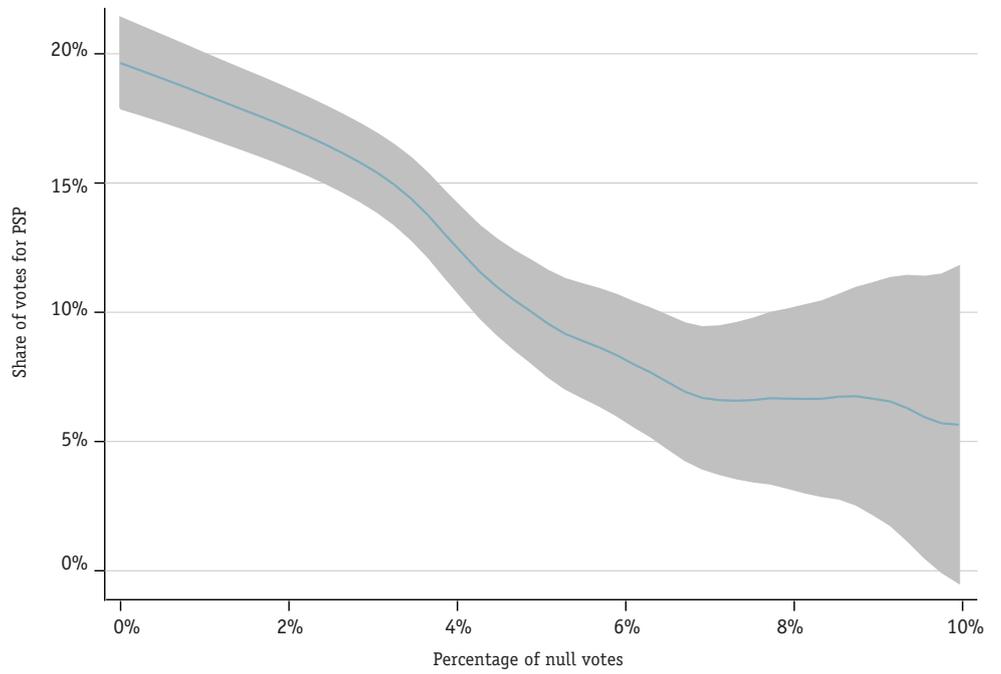
c Null votes and support for the Free Patriotic Movement



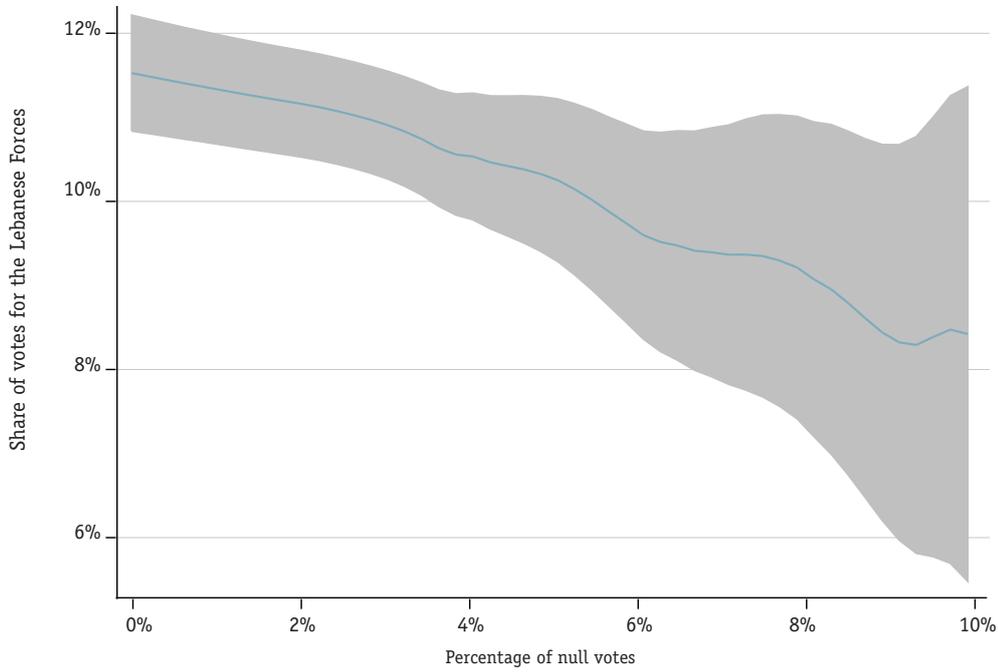
d Null votes and support for the Future Movement



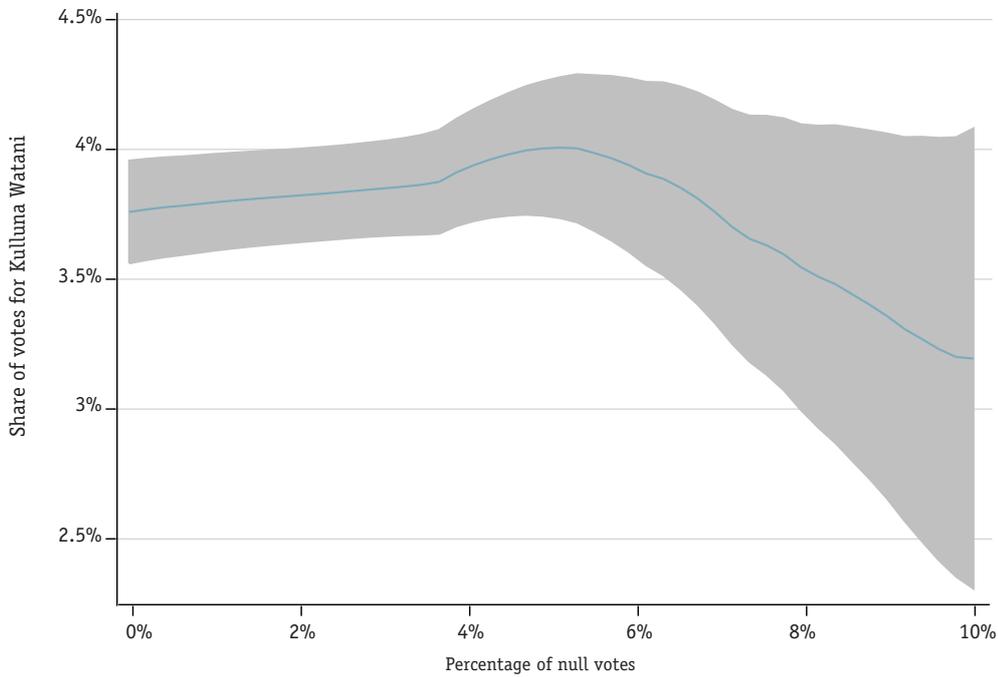
e Null votes and support for the Progressive Socialist Party



f Null votes and support for the Lebanese Forces



g Null votes and support for Kulluna Watani



Source Own calculations based on the Ministry of Interior's electoral data.

Cooking Numbers: Is There Evidence of Falsification of Votes During the Counting Process?

While tests based on turnout data may detect stuffed ballots and intimidated voters, there are other tests that can detect fabricated vote counts at the tabulation stage. Political parties could ‘cook’ the numbers, either by adding or subtracting number of votes for a list or by ‘re-shuffling’ votes within their list from one candidate to another, or even by directly coming up with whole numbers. Ascencio and Rueda (2019) found robust evidence in Mexico that the presence of party representatives in a polling station improves the party’s electoral outcomes and suggest that representatives are either able to avoid irregularities that otherwise other parties would commit (‘protective role’) or are involved in irregularities themselves.⁵⁵ A branch of political science literature tries to detect fraud and anomalies in the counting process through tests on the digits of the vote count values. Digit tests have been done on first digits,⁵⁶ second significant digits,⁵⁷ and the last digits.⁵⁸ For these tests to be able to capture fraud, they are based on the fact that humans tend to be bad at making up numbers, which results in abnormal distributions of numbers on aggregate. However, if fraud was committed with machines that create random numbers, then these tests would fail to show any irregularity even if they did occur.

In this report, we compute last-digit tests, based on the idea that unmanipulated vote counts have uniformly distributed 0-9 last digits. This means that there is an equal chance (10%) for a last digit number to appear in any vote count, be it turnout or the number of votes for any given list, party or candidate. For example, if a list received 603 votes in one polling station, the last number used in our analysis is 3. As there are many small polling stations with few vote counts, we restricted the analysis to those centers with more than 50 voters and for lists that have significant enough votes, so as to minimize the chances that the deviations from equi-frequent patterns are due to normal features of small numbers and not to irregularities in the counting process.

Overall, we do not observe any significant deviations from the uniform distribution in the total vote count (number of votes or valid votes) in Lebanon, although there are significant oddities in specific districts such as North 3 (Batroun, Bcharre, Koura, and Zgharta) or South 2 (Sour and Zahrani). However, we observe significant deviations from the uniform distribution when looking at the number of votes for the winning list (figure 18). In particular, the votes ending in 3 appear too often, while those ending in 0 and 7 appear fewer times than expected. Based on all the more than 6,000 polling stations analyzed, fewer than four in a hundred non-fraudulent elections would produce such numbers. This suggests that electoral results were indeed manipulated, potentially in favor of the winning lists.

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Ascencio, S. and M. Rueda. 2019. ‘Partisan Poll Watchers and Electoral Manipulation.’ *American Political Science Review*, 113(3): 727-742.

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Cantú, F. and S. Saiegh. 2011. ‘Fraudulent Democracy? An Analysis of Argentina’s Infamous Decade Using Supervised Machine Learning.’ *Political Analysis*, 19(4): 409-433.

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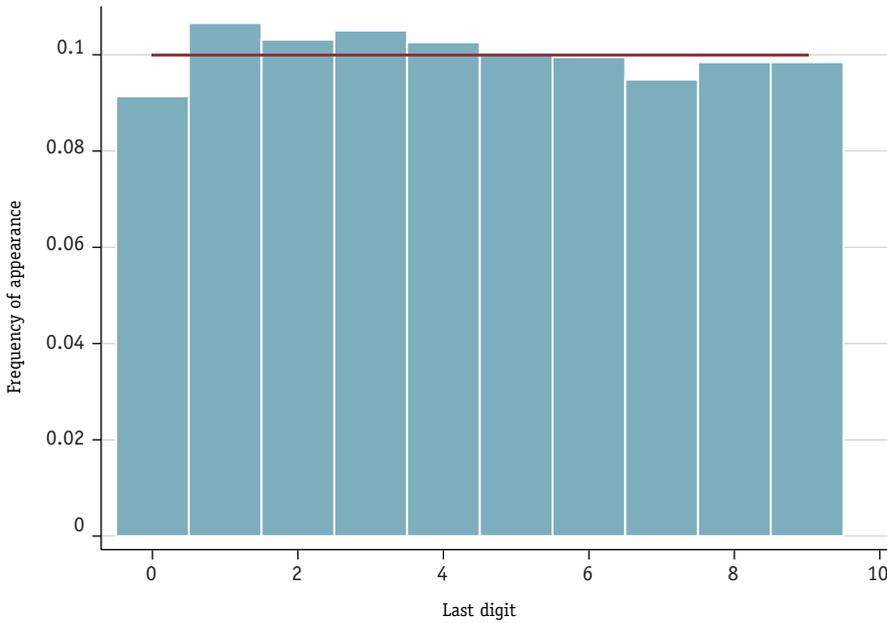
Pericchi, L. R., and D. Torres. 2011. ‘Quick Anomaly Detection by the Newcomb-Benford Law with Applications to Electoral Processes Data from the USA, Puerto Rico and Venezuela.’ *Statistical Science*, 26(4): 502–516.

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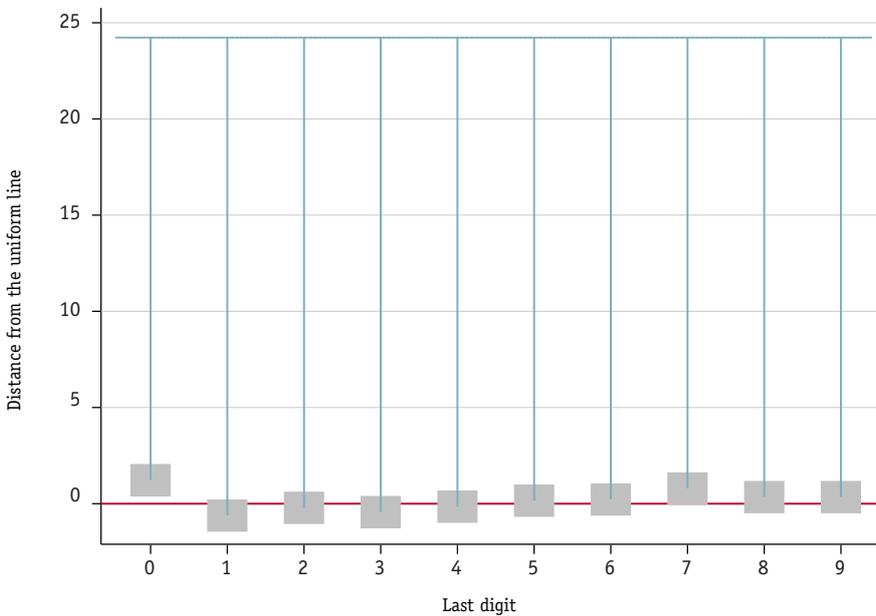
Beber, B., and A. Scacco. 2012. ‘What the Numbers Say: A Digit-Based Test for Election Fraud.’ *Political Analysis*, 20(2): 211-234.

Figure 18 Frequency of last digits in the number of votes for the winning list in each polling station

a Frequency of last digits in the number of votes for winning list



b Distance from uniform line



Source Own calculations based on the Ministry of Interior’s electoral data.

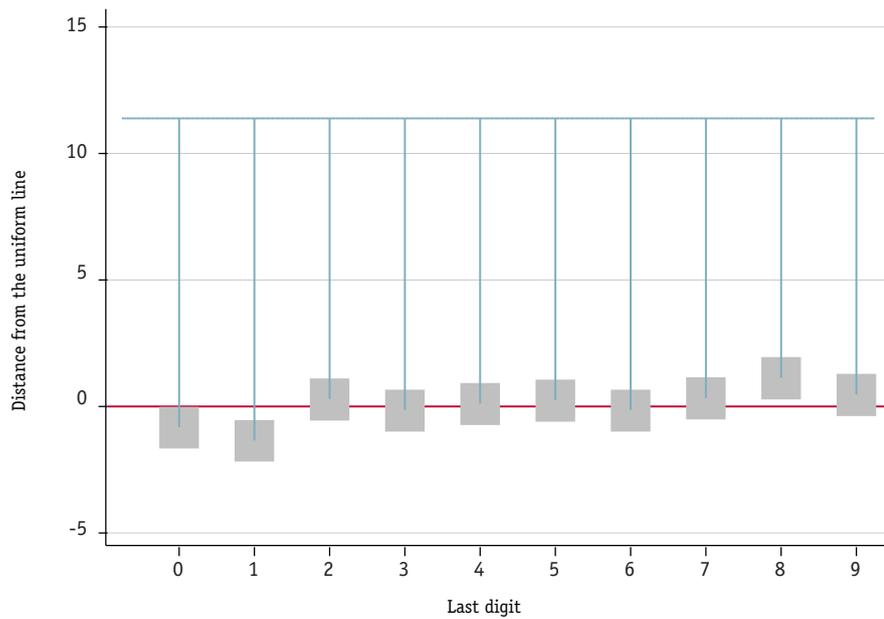
When looking at individual parties, we find that last digits of the vote counts for Amal and the Free Patriotic Movement (FPM) are not uniformly distributed (figure 19). For every hundred elections, we would only find those distributions of numbers in four and five elections respectively, if it were just by random chance and not

fraudulent. In both cases, there are too few eights, while there are too many ones among last digits for the votes that went to Amal. For other parties, statistical tests did not show any oddities.

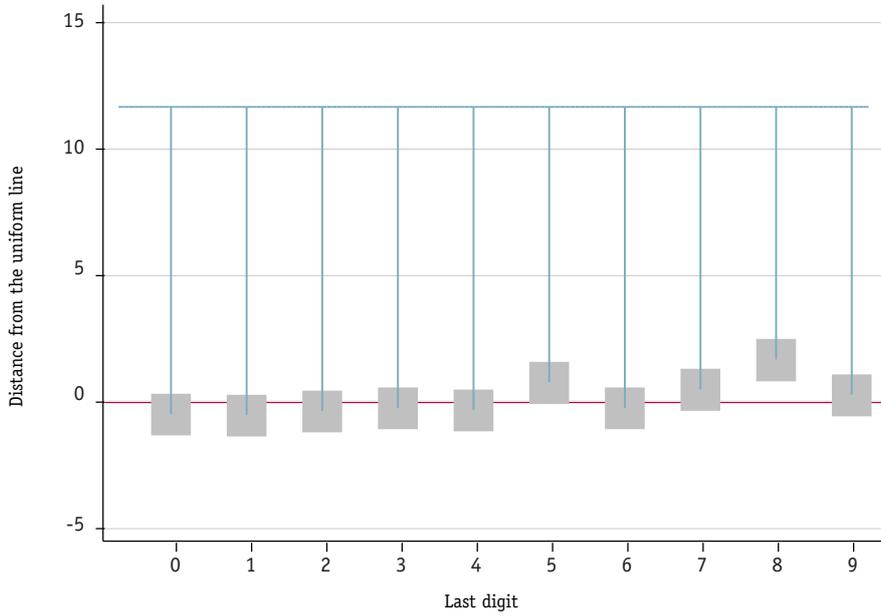
Interestingly, when we zoom in and divide the number of votes for different candidates by confession, we find that the vote count for Shia and Maronite candidates is odd, mimicking irregularities observed for the Shia party Amal and the Maronite party FPM. In this case, only three and four elections respectively out of a hundred would yield these distributions if they were just by random chance and not due to fraud. Therefore, we find suggestive evidence of irregularities in the counting process that benefited winning lists and, in particular, Shia, and Maronite candidates from Amal and FPM.

Figure 19 Testing uniformity of last digits for the number of votes for parties and candidates from a given sect

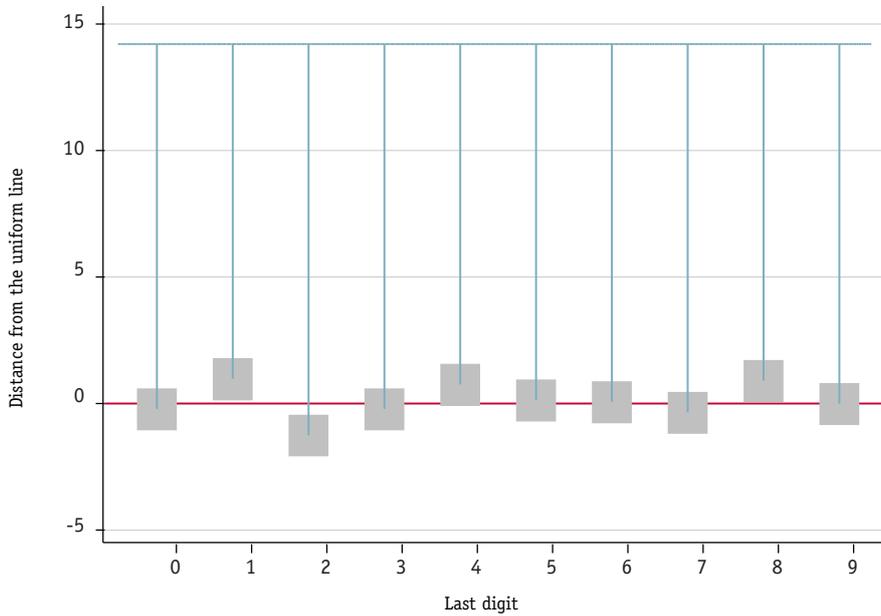
a Uniformity of last digits for the number of votes for Amal



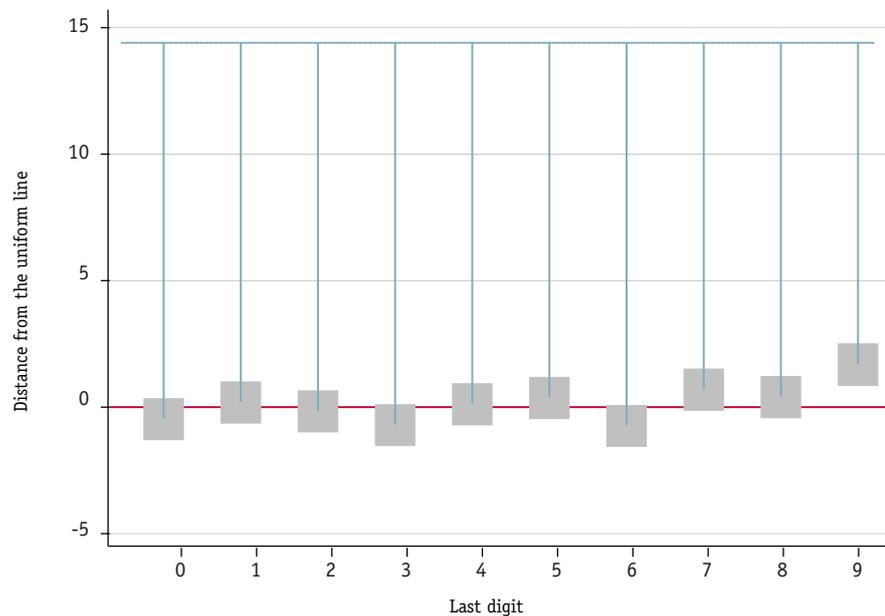
b Uniformity of last digits for the number of votes for FPM



c Uniformity of last digits for the number of votes for Shia candidates



d **Uniformity of last digits for the number of votes for Maronite candidates**



Source Own calculations based on the Ministry of Interior's electoral data.

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Annex 1: Regression analysis on determinants of vote buying

| Variables | Model (1) | Model (2) |
|--------------------|-------------------|-----------------------------------|
| | Received handout | Received handout (+voted in 2009) |
| Female | 0.125 (0.209) | 0.143 (0.206) |
| Years of schooling | 0.039 (0.028) | 0.0433 (0.0268) |
| Shias | -0.436 (0.358) | -0.503 (0.329) |

| | | |
|---------------------------|----------------------|----------------------|
| Maronites | -0.576** (0.285) | -0.594** (0.291) |
| Greek Orthodox | -0.630 (0.388) | -0.624 (0.407) |
| Greek Catholic | -0.302 (0.490) | -0.380 (0.486) |
| Druze | -1.105** (0.457) | -1.157** (0.482) |
| Sectarian identity | 0.129 (0.102) | 0.119 (0.100) |
| Cross-sect networks | -0.123 (0.101) | -0.108 (0.0912) |
| Political networks | 0.021 (0.115) | 0.0176 (0.111) |
| Unemployed | 0.311 (0.508) | 0.305 (0.500) |
| Self-employed | 0.384 (0.402) | 0.389 (0.409) |
| Wage-employed | 0.205 (0.390) | 0.189 (0.394) |
| Homemaker | 0.114 (0.451) | 0.0717 (0.456) |
| Economic situation | -0.461*** (0.142) | -0.494*** (0.132) |
| Underage in 2009 | -0.012 (0.219) | 0.439 (0.318) |
| Voted in 2009 | | 0.564** (0.281) |
| Handout obligation | 0.445** (0.187) | 0.451** (0.185) |
| Member of political party | 1.238*** (0.239) | 1.168*** (0.227) |
| Governorate Fixed Effects | YES | YES |
| Observations | 1,011 | 1,011 |
| R-Squared | 0.139 | 0.143 |

Note Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1