Out of Power but Not Powerless:
Electoral Consequences of Disaster Response to Hurricane María in Puerto Rico

Authors

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Abstract: Emerging scholarship assesses the electoral consequences of climate disasters. We contribute to this literature by evaluating the extent to which communities underserved by disaster recovery efforts punish political incumbents. Using power restoration in the US territory of Puerto Rico after Hurricane María in 2017 as a measure of government responsiveness, we examine how government responsiveness to disasters affects subnational electoral outcomes during the 2020 elections in Puerto Rico. We find a negative association between power restoration crew deployment delays and political support for the gubernatorial incumbent's party in bivariate analyses. Further, we find that incumbency is negatively associated with ruling support in multivariate analyses. Yet, other drivers of political support are more strongly associated with electoral support, including turnout, local party organizing strength, the share of third party support, and demographic features of the electorate. Our findings provide limited empirical support for the notion that disaster resource allocations have political consequences for those in power, and demonstrate the need to further understand the linkages between disasters and electoral support.

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INTRODUCTION

How does the distribution of disaster recovery resources affect election outcomes? Who do voters blame for poor disaster management? These questions are pressingly relevant as climate change increases the frequency and magnitude of extreme events (Mendelsohn Emanuel, and Chanobayashi 2012), thereby exacerbating the need for essential goods and services while deteriorating the infrastructures that provide them. Disaster recoveries are junctures in which governments demonstrate which social groups they prioritize in a time in which these decisions can determine who lives and who dies. How governments respond to disasters, most often the result of extreme weather events, has implications for electoral politics. Addressing this question helps to understand the impact of disaster resource allocations on voting behavior. Further, the combined effect of disaster resource allocations can help shape who wins elections, thus shaping the make-up of governments and the enactment of policy beyond disaster management issues.

Incumbent officials can use disaster resources to gain electoral advantages or reward electorally supportive groups (Cole et al. 2012; Gallego 2018; Healy and Malhotra 2009; Reeves 2011). The use of disaster recovery resources for electoral gains can inhibit a government's ability to address exposure to risk among socially vulnerable communities. Disaster resource mismanagement has deadly consequences (Escaleras et al. 2007). Hurricane Maria, for instance, is one of the deadliest climate disasters in modern U.S. history. Moreover, electorally motivated distributions of disaster resources can create conditions of political inequality that enable the political entrenchment of elites who fail to meet a government's responsibility for justice (Tormos-Aponte et al n.d.)

Disasters elicit the mobilization and distribution of recovery resources within and across levels of governance. U.S. presidents, for instance, can unilaterally issue disaster

declarations, enabling state and local government access to federal funding when their capacities are overwhelmed. The mobilization of emergency response and relief resources starts at local level, with the support of state and territorial governments, and ascends to the federal government (Painter 2022). Power restoration is among the most important aspects of response to extreme weather events. Power outages in the wake of tropical cyclones are associated with various health outcomes, including mortalities, as well as disrupted global supply chains, economic hardship, and weakened health systems (Anderson and Bell 2012; Aton 2017; Casey et al. 2020; Shughrue et al. 2020; Shuai et al. 2018). In this context, swift government action holds the potential to save lives and ameliorate disaster-related hardships locally and globally.[1]

Beyond health and economic outcomes, many studies document the electorally motivated and politically consequential nature of disaster recovery efforts and resource allocations (Cole et al. 2012; Gallego 2018; Healy and Malhotra 2009; Hilhorst 2013; Pelling and Dill 2010; Reeves 2011). Studies find that governments are more responsive to disasters in electorally competitive localities (Daniels 2013; Reeves 2011; Sainz-Santamaria and Anderson 2013), where there is high voter turnout (Besley and Burgess 2002), where voters have ties to powerful politicians (Aldrich 2015), in areas that support the ruling party, and more privileged voters reside (Tormos-Aponte, García-López, and Painter 2021). Voters reward elected officials' politically favorable disaster resource allocations in subsequent elections (Bechtel and Hainmueller 2011; Gallego 2018; Gasper and Reeves 2011; Healy and Malhotra 2009; Islam and Amati 2017; Reeves 2011) (but see Arceneaux and Stein 2006).[2] Further, studies find that federal disaster spending increases incumbent party turnout while demobilizing opposition party voters (Chen 2012). Voters also punish poor disaster management performance (Arceneaux and Stein 2006; Cole, Healy, and Werker 2012), and even events outside of government control (Achen and Bartels 2004).[3]

[1] Hurricane María in Puerto Rico in 2017, for instance, disrupted the global medical supply chain, including drugs exclusively manufactured in Puerto Rico.

[2] This phenomenon does not only take place within the US. See Bechtel and Hainmueller (2011), Gallego (2018), and Islam and Amati (2017) for similar findings in a comparative context.

[3] While Achen and Bartels (2004) argue that voters hold governments accountable for events outside of their control, such as extreme weather events, Healy and Malhotra (2009; 2013) posit that voters have a reasonable expectation that governments will take responsibility for natural hazard mitigation, preparedness, and response.

The state of knowledge on the electoral impacts of disaster allocations has important limitations. Studies on the electoral consequences of disaster resource allocations tend to focus on the US presidency, given its power to declare disasters and enable federal disaster spending, and local use of federal assistance (e.g. Daniels 2013; Gasper and Reeves 2011; Healy and Malhotra 2009; Reeves 2011) (but see Islam and Amati 2017). This focus on the electoral consequences of federal disaster spending occurs despite the polycentric dynamics of disaster management and the vital importance of US state, local, and territorial government disaster response. State, local, and territorial authorities are at the frontlines of disasters. Federal disaster spending supports state, local, and territorial authorities when their capacities are overwhelmed. State, local, and territorial authorities retain significant discretion in terms of their use of federal spending. Thus, state, local, and territorial government disaster management performance may elicit electoral consequences equal or greater to those observed at the federal level. With few exceptions, existing literature also tends to neglect the mobilization of non-monetary resources, such as the deployment of power restoration crews during a power outage, despite their life and death implications. Healy and Malhotra (2013) argue that investments in disaster *preparedness*, such as energy resilience, do not appear to have clear electoral consequences, but they find electoral consequences of presidential disaster *relief* (2009). To our knowledge, however, published research has yet to emerge examining the electoral consequences of power restoration in the wake of disasters.[4]

The dearth of assessments of the electoral consequences of energy restoration in the wake of disasters persists despite its consequential nature. The longstanding unequal distribution of energy becomes deadly in the context of disasters (Anderson and Bell 2012 Bednar and Reames 2020; Carleton and Hsiang 2016). Tormos-Aponte, García-López, and Painter (2021) find that the power restoration following hurricane María, which produced the longest outage in U.S. history, favored communities supportive of the ruling party and more privileged communities. The politically favorable power restoration following hurricane María, which utility and disaster management officials portrayed as technical and

[4] Fonseca Galvis and Superti have a manuscript in preparation on this topic with a focus on Cuban elections following hurricane Irma.

"colorblind," were among various controversies that plagued the ruling New Progressive Party in Puerto Rico during the handling of the hurricane María recovery.[5,6] The extent to which voters pay attention to disaster management performances and factor them into their voting behavior is a matter of debate. Some argue that the effect of government mismanagement, such as corruption scandals, fades quickly due to the unequal access to information about corrupt acts and voters' greater attentiveness to election year dynamics (Healy and Lenz 2014). Bechtel and Hainmueller (2011), on the other hand, found that a robust response to flooding in Germany had lasting favorable electoral effects for the Socialist government over two election cycles.

We expect that voters are considerably attentive to the extent to which they have electricity and whether communities with higher shares of residents across the political spectrum get power back first. Contrary to other kinds of government resources, energy is a vital resource without which communities experience negative health outcomes, material losses, among numerous other hardships. In interviews, government officials who experienced the hurricane María disaster in 2017 volunteered information about the exact moment in which power came back on for them. Thus, voters are not indifferent to or unaware of their access to energy. Voters need not turn on the news to know whether they got power back after a storm. Here we differentiate the effect of energy restoration from studies on other kinds of government resources and awards, which inform the notion that attention to politics, interest group links, and sources of political information determine the electoral effects of pork barrel spending and the notion that the public is indifferent to differences in the flow of awards (Stein and Bickers 1994).

We expect that the timing of power restoration deployments and the consistency of the provision of electricity once power is restored in the wake of a power outage will have electoral consequences, where areas that receive a crew deployment early and retain power once it is restored will be more likely to avoid punishing incumbents relative to those who take longer to receive a crew deployment and gain consistent access to electricity. Our

[5] de Onis (2018) documents other controversies during the hurricane María energy restoration process, including instances in which the Puerto Rico government awarded multi-million dollar contracts to inexperienced firms to participate in the power restoration process.

[6] Interviews with electric utility and disaster management officials in Houston, Florida, and Puerto Rico administered in 2019.

methodological approach consists of a multi-faceted analysis of electoral consequences of disaster responses, which includes examining electoral support declines across three different elections at the precinct, district, and municipal level. For each election (governor, mayor, and representative), we examine the relationship between disaster response (measured as median days to power crew deployment) and party support, along with a variety of covariates that could affect changes in party support, including incumbency, turnout, demographic variables, concentration of churches, population decline, and political power. We use a combination of standard ordinary least squares (OLS) regressions and stepwise regression models to analyze these associations.

We find negative associations between power restoration delay and political support for the ruling party in bivariate analyses. Our multivariate analyses, however, do not show associations between crew deployments. Rather, we find evidence of other drivers of electoral support, including incumbency, turnout, local party organizing strength, and demographic features of the electorate. Contrary to ruling party claims, we do not find that population decline is associated with declines in support for the ruling party.

In the context of Puerto Rico, both major parties have experienced sizable declines in electoral support. Concomitantly, emerging parties have successfully popularized an anti-establishment discourse that portrays major parties as the same and part of "la vieja política" (the old politics). Outside of the major parties, Partido Nuevo Progresista (PNP, which translates to New Progressive Party) and the Partido Popular Democrático (PPD, which translates to Popular Democratic Party), no other party has ever governed in Puerto Rico under US colonial rule. Major parties are popularly associated with corruption scandals, Puerto Rico's failed economic model, infrastructural decline, and poor disaster management. Thus, in this context, incumbents can be punished as a result of a confluence of compounding disasters, taking place at different times during the electoral cycle, and further driving the electorate into social vulnerability and marginalization. Further, incumbents' inability to secure the consistent provision of essential goods and services in a colonial context, whereby there are structural issues that bar governments from delivering on their campaign promises and meeting expectations of good governance, can render incumbency a liability. In this context, incumbent parties can deploy a diversity of tactics to act as countervailing forces against their poor disaster management performance and general inability to deliver on

campaign promises. Among these tactics, we find that municipal level party organizing is an impactful mechanism by which incumbent parties can reduce their loss of support even in the wake of unequal disaster resource allocations.

The results of this study point to the political implications of infrastructural decline, where incumbent parties are assigned responsibility for issues that extend temporally beyond electoral cycles. Our finds also suggest that non-monetary transfers have resource effects and hold the potential to impact electoral results. Further, the study findings trouble the notion that petty corruption is not enough to finance the clientelistic machine, and thus, do not merit as much attention as grand corruption schemes. In tight races, petty corruption can have consequential electoral effects. These effects may be enough to entrench elites electorally, thus enabling grander corruption schemes. Moreover, this study highlights how corruption can be clientelistic insofar as it yields electoral gains, and still, be entirely legal. Disaster resource distributions are an example of this. Regardless of their legality, unequal disaster resource allocations inhibit governments' abilities to mitigate the impact of disasters while enabling electoral advantages for elites that fail to manage disasters in ways that prioritize the most vulnerable. Yet, we argue that even when voters lose power, they are not powerless. While unequal disaster allocations may demobilize those who experience government neglect, the case of Puerto Rico post-María evidences how those who experience government neglect in the wake of a disaster mobilize their outrage through electoral and non-electoral means.

THEORETICAL FRAMEWORK

How does the distribution of disaster recovery resources affect election outcomes? Who do voters blame for poor disaster management? We develop a theoretical framework for this question drawing from the study of disasters, environmental justice, political behavior, and political sociology.

Politically favorable disaster resource allocations can secure electoral support from voters who reward government responsiveness to disasters and capable disaster management. Existing studies find that government officials use disaster resources for electoral gain. Most of this work has focused on the use of presidential powers to declare disasters, thus enabling a flow of federal funding to state and local governments overwhelmed in the wake of a disaster (Daniels 2013; Gasper and Reeves 2011; Healy and

Malhotra 2009; Reeves 2011). These studies find that Presidents tend to target competitive states with their disaster declarations (Daniels 2013; Reeves 2011). Reeves (2011) finds that a competitive state is twice as likely to receive a presidential disaster declaration than an uncompetitive one.

In turn, voters reward the incumbent presidential party for its disaster relief spending (Healy and Malhotra 2009; Reeves 2011). Yet, those who experience neglect can also punish poor disaster management in the ballot box (Arceneaux and Stein 2006; Cole, Healy, and Werker 2012). While the use of disaster spending for electoral gain might not be enough to finance a clientelistic machine and mechanisms to monitor voting behavior might not be in place, as clientelism scholars expect of clientelistic schemes (Stokes et al. 2013; Szwarcberg 2012), the electoral consequences of disaster pork barrel spending are well documented in US federal electoral politics.

Access to electricity is a powerful indicator of capable disaster management. The inability to access energy over an extended period of time is a scandalous event. Aware of the negative electoral, economic, and public health consequences of such delays in power restoration, governments are pressured to engage in scandalous behavior, such as paying high sums of money to hire inexperienced and newly-founded firms to aid in energy restoration. Such was the case in Puerto Rico in the wake of hurricane María (de Onis 2018). Existing studies, however, find that the electoral effects of scandals fade quickly (Pereira and Waterbury 2019). Not all voters are exposed to political scandals due information accessibility biases (Pereira and Waterbury 2019). Others find that voters pay more attention to election year dynamics (Healy and Lenz 2014). Yet, as President Clinton (2004) and others observed (Reeves 2011), once people face a disaster, it becomes the most important issue in their lives. Infrastructural decay and the increased frequency and intensity of extreme weather events expose a greater share of the population to disasters and hold the potential to magnify the electoral consequences of disaster management.

The provision of energy is a public good that eschews information accessibility biases that ameliorate the electoral effect of scandalous or corrupt behavior. Energy consumers need not access news outlets to know whether they have power. State-level politicians are at a greater risk than federal officials of being punished electorally in the wake of a disaster given their proximity to the people who experience the disaster. Further, in the US, disaster

relief is a bottom-up process, whereby federal support is awarded when state and local capacities are overwhelmed. Thus, responsibility for disaster relief in the US is primarily allocated at the state and local level. State and local authorities are at the frontlines of disaster management. Moreover, the news coverage of state-level officials can further incentivize state-level disaster responsiveness (Besley and Burgess 2002). Accordingly, we expect that gubernatorial incumbent parties are more exposed to electoral rewards and punishments in relation to their disaster management performance.

There are various alternative explanations for our outcome of interest–declines in incumbent party support. Studies on US electoral outcomes identify the importance of local party strength and organizing as a determinant of electoral outcomes (Doherty et al 2021; Skocpol, Tervo, and Walters 2021). Local party organizations play vital roles in US electoral politics, including candidate recruitment, fundraising, and mobilizing votes on election day. In this view, stronger local party organizations will be able to counteract the effect of the blame that voters assign to incumbent parties for disaster outcomes.

American politics scholars debate the extent to which incumbency produces electoral advantages, with some arguing that the advantage of incumbency has declined (Jacobson 2015). Further, incumbency in the wake of a disaster might be a liability, given that voters tend to hold incumbents accountable for poor disaster management performance (Achen and Bartels 2004; Arceneaux and Stein 2006). Yet, voters also reward capable disaster management or favorable disaster resource allocations (Reeves 2011).

Thus, we expect that the effect of incumbency is conditional on the effectiveness of a government's disaster response.

HYPOTHESES

The theoretical expectations above lead us to present the following hypothesis:

> **H_1:** Delays in government responsiveness to disasters are associated with larger declines in political support for the incumbent party.

THE PUERTO RICAN ELECTORAL CONTEXT

The US territory of Puerto Rico provides an ideal context to examine the impact of disaster resource allocations on electoral outcomes. The 2017 hurricane María disaster provides a unique opportunity to examine this question given the tragic natural experiment whereby every household in Puerto Rico lost power. Hurricane María's wind and flood damage were

such that more than 18,000 crew deployments were ultimately needed to restore power. The timing of these deployments varied across regions. Our prior work (Tormos-Aponte, García-López, and Painter 2021) finds that socially vulnerable communities and opposition party strongholds experienced delays in crew deployments and power restoration (see also Roman et al 2019).

The 2020 Puerto Rico elections were historic. Major parties in Puerto Rico, PNP and PPD, have experienced significant declines in support. Thus, we are concerned here with the size of the loss of support and the extent to which favorable disaster resource allocations helped reduce the loss of support. This stands in contrast to other studies on drivers of electoral outcomes, which tend to focus on the changes in vote shares as their outcome of interest. Given the Puerto Rican electoral context and the shifts that have taken place over the past election cycles, we focus on changes in electoral support decline. We expect that clientelistic disaster allocations will reduce the size of the loss of support for the incumbent PNP party.

The loss of support for major parties in Puerto Rico follows widespread discontent within the electorate and a pattern of outward migration. While the ruling PNP downplays its loss of support and low voter turnout as associated with outward migration, existing analyses find that this decline in voter turnout is not the result of the phenomenon of outward migration (Vargas-Ramos 2018). This study accounts for population decline to further examine this claim. Many have argued that this loss of support for major parties follows a loss of legitimacy among Puerto Rican political elites and the discursive portrayal of major parties as responsible for Puerto Rico's financial crisis and disaster mismanagement (Tormos-Aponte 2020; Vargas-Ramos 2018).

DATA

This section describes the sources of data used in the modeling. We obtain election statistics from the Puerto Rico Elections Commission (Comisión Estatal de Elecciones-CEE) official data files and reports.[7] This data includes voter turnout and election results for gubernatorial, mayoral, and representative election outcomes. In Puerto Rico, the

[7] We extracted CEE election data from Manuel Álvarez-Rivera's electionspuertorico.org repository.

gubernatorial election is a territory-wide contest, mayoral elections are tied to specific municipalities, while representatives are voted for by district, with each representative holding office for one of the forty districts within the Puerto Rican legislature.

Using this data, we constructed the dependent variable for our models as the percent difference in support between the 2016 and 2020 elections for both major political parties, PNP and PPD. In our measure of decline in political support, negative numbers represent a decrease in party-wise political support between elections. Both parties experienced a decline in support between 2016 and 2020, but these declines are much more pronounced for the ruling party Partido Nuevo Progresista (PNP) than for the opposition party, Partido Popular Democrático (PPD). For PNP political support, average declines across elections and levels of government fall somewhere between 6.38% to 10.83% total loss in support. For PPD, these same measures of decline are still present, but smaller: between 5.12% to 7% on average.

Simultaneously, in 2020, there was an unprecedented increase in support for multiple political parties across Puerto Rico challenging majority parties, including Proyecto Dignidad (PD), Moviemiento Victoria Ciudadana (MVC), and the Partido Independentista Puertorriqueño (PIP). MVC is a coalition consisting of former PPD leaders, such as Manuel Natal, supporters of the now-defunct Partido del Pueblo Trabajador (itself a coalition of movements), and supporters of an independent gubernatorial candidate in 2016, Alexandra Lúgaro, among other sectors of the Puerto Rican Left. The MVC ran on an anti-corruption platform, finding strength in countering political corruption across Puerto Rico and in a discourse that branded majority parties as the same and jointly responsible for Puerto Rico's ongoing fiscal crisis. The PIP is a longstanding Left-leaning pro-Puerto Rican independence party, capturing voters wanting to end the colonial rule of the United States as well as voters seeking to break away from the majority rule of the PPD and PNP. The PD is a religious fundmanetalist party that pulled religious voters away from the PNP and PPD majority parties, arguing that these parties had given into pressures from the Left and that a Christian conservative party was needed to represent this sector of the electorate.

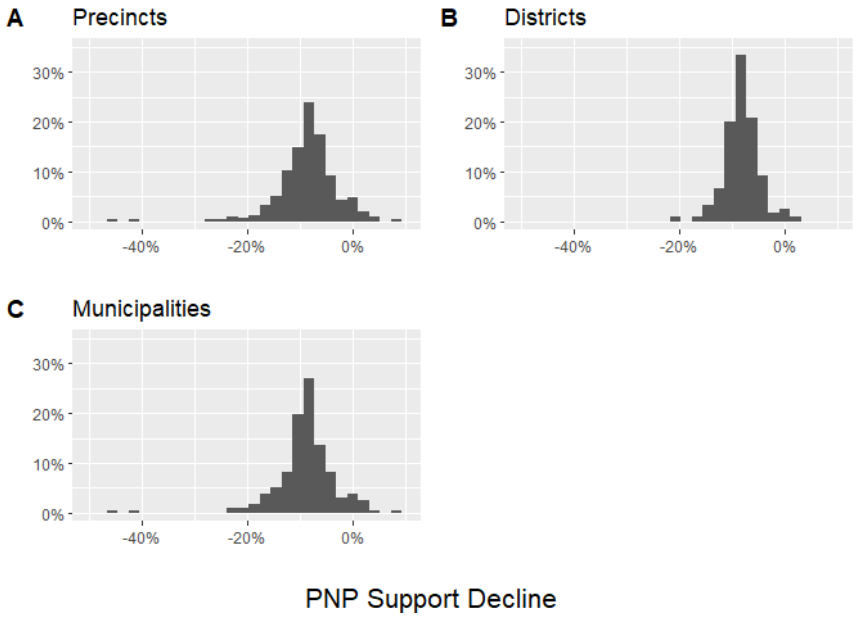

Figure 1: This figure represents the range of decline in support for the Partido Nuevo Progresista (PNP) from 2016 to 2020. The x-axis represents the decline in percentage of votes; negative numbers represent higher values of support loss. The y-axis represents the percentage of jurisdictions of the amount of political support decline.

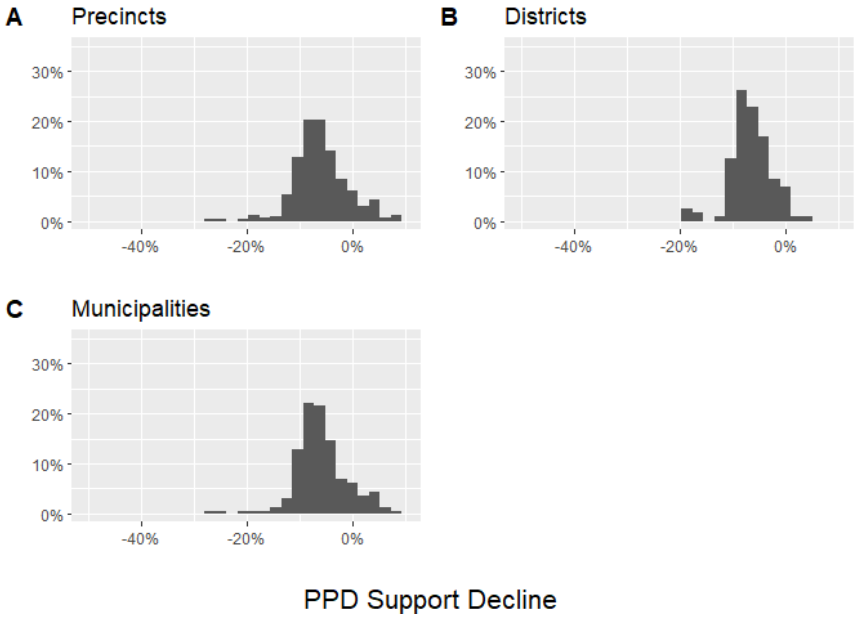

Figure 2: This figure represents the range of decline in support for the Partido Popular Democrático (PPD) from 2016 to 2020. The x-axis represents the decline in percentage of votes; negative numbers represent higher values of support loss. The y-axis represents the percentage of jurisdictions of the amount of political support decline.

Our key independent variable is disaster resource allocation. We focus on an under examined resource with life and death implications—electricity restoration. We use a measure of power restoration as energy crew deployments across Puerto Rico during power outages post Hurricane María in 2017-2018. We use the Puerto Rico Energy Power Authority's (PREPA) records of electric utility crew deployments as our measure of government responsiveness. This measure captures a visible and consequential effort that governments undertake in the wake of a disaster in response to the event. We calculate the median number of days in a given political area (unidad, precinct, district, and municipality) it took for crews to first arrive at different addresses across these areas.

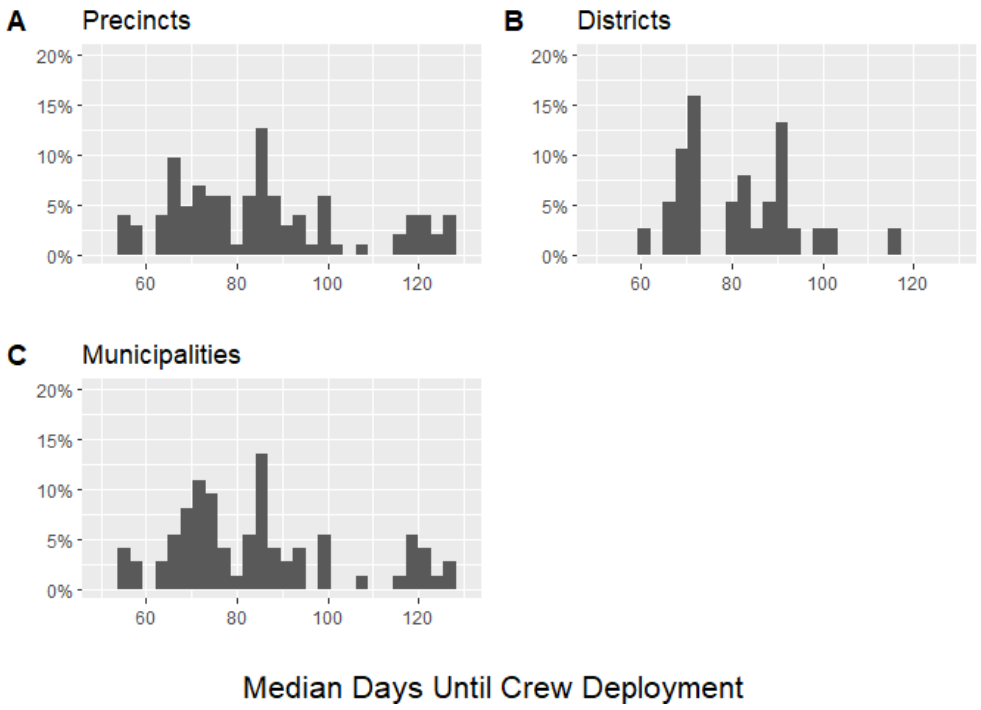

Figure 3: This figure represents the range of median days until crews were deployed to restore power to various political localities across Puerto Rico after Hurricane Maria. The x-axis represents the median amount of days until crews were deployed to that jurisdiction. The y-axis represents the percentage of jurisdictions with that given amount of median measure of days.

We selected several statistical controls to account for other determinants of political outcomes in Puerto Rico, such as population decline, third party electoral performance, voter turnout, municipal level organizational power, demographics, and economic conditions of voters. From the CEE elections data, we use a measure of ruling party incumbency for each political position at each level of government. We also use this data to calculate several other election variables that potentially explain electoral support decline. We calculated turnout percentages for 2016 and 2020, but found no statistical difference between turnout in either election. However, we still use turnout for one year (2016) to control for how turnout in various elections in different electoral levels affect decline in support.

We also calculated measures of two distinct changes in the 2020 elections: the rise in support for the religious fundamentalist party, Proyecto Dignidad (PD), and the influence of local party organizing, through "Unit 77" voting patterns. In 2020, the PD party in Puerto Rico saw an increase in support in several areas, showing a move away from the dominant PNP party towards a more Christian conservative PD party. We view this political phenomenon as a potential influence for the decline in PNP, given the notion among religious fundamentalists that the PNP had betrayed their interest during the 2016-2020 PNP administration. We also use a measure of church density in the three different political boundaries to control for the influence of organized religion and its voter mobilization efforts on political outcomes (PRDOS 2019). We draw this data on churches from the Puerto Rico Department of State's 2019 registry of nonprofits, which classified non-profits by type, including religious organizations. We use this data to geolocate churches and calculate church density at each level of government.

Additionally, we use percentage in support for the PNP, PPD, and PD parties in "Unit 77" as a measure of local party organizational strength. Unit 77 grouped absentee and early votes during the 2020 Puerto Rico elections. We take the share of the majority parties' Unit 77 votes as a proxy measure of local party strength because the 2020 election law reform mandated that local party officials had to pick up Unit 77 votes at each household prior to the election. This rule placed an onerous burden on local parties; one which only strong and well organized local parties would be able to assume.

Further, we used Puerto Rico election data to identify swing municipalities, districts, and precincts within the archipelago following the Cook Political Report Partisan Voter Index

(PVI) method. The Cook Political Report PVI is generally calculated by taking a party's average vote share over the past two elections for a given region and subtracting it by the national average of the party's vote share over that same period (Mayer and Wood 1995; Carson and Crespin 2004; Lindgren and Southwell 2013; Cronert and Nyman 2021). It is designed to describe politics where either one of two parties dominate. Large positive numbers reflect high partisanship, and indices equal to 0.5 or less are generally reported as even. We calculated the PRPVI for the PNP using the same technique with national averages calculated per election. For example, we calculated the municipal level PRPVI by totaling the vote for a PNP mayoral candidate across all municipalities then taking the average of this number for two election years. We then subtracted this number from the PNP party vote share for each municipality mayoral election in the year of interest. Swing PVI for different levels of government for Puerto Rico is one of our electoral statistical controls, along with party incumbency of leadership going into the 2020 election.

The rest of our covariates include various measures of demographic variables from the United States Census Bureau, including population density, elderly population rates, minority population rates, and poverty rates. For these four variables, we compared the rates between 2016 and 2019, using 2019 instead of 2020 due to concerns of Census data collection from the 2020 Census. We found high correlations with all of these measures between 2016 and 2019, thus we opt to use the data for 2016 to control for these demographic variables. We also use a measure of population decline from 2016 to 2020 to control for any movement among or out of political boundaries in Puerto Rico.

METHODOLOGY AND ANALYSES

Our methodological approach employed a combination of standard ordinary least squares (OLS) regressions and stepwise regressions with a continuous dependent variable – i.e., difference in political party support across precincts (110 total precincts) in gubernatorial, mayoral, and representative elections.

$$E(\text{PNP Support Decline}) = B_0 + B_1(\text{Crew Days}) + B_2(\text{Nightlight Days}) + B_3(\text{Incumbency}) + B_4(\text{Population Density}) + B_5(\text{Elderly Density}) + B_6(\text{Minority Density}) + B_7(\text{Population Decline}) + B_8(\text{Church Density}) + B_9(\text{Poverty}) + B_{10}(\text{Turnout}) + B_{11}(\text{PD Vote}) + B_{12}(\text{PRPVI}) + B_{13}(\text{Unit 77 PNP/PPD/PD}) + \varepsilon$$

We run an OLS regression for each of the electoral positions across the 110 precincts in Puerto Rico for the Partido Nuevo Progresista (PNP). After assumptions testing and the initial run of the regression models, we conduct stepwise regression analyses, which examines model specification with "stepwise" selection: a procedure that helps construct a regression model by including and removing independent variables until there is no statistical reason to continue to do so. This type of analysis helps to build a regression model that includes independent variables that are related to the dependent variable. We used forward, backward, and stepwise selection to produce our final models.

FINDINGS

Power Restoration and Disaster Response Effects on Political Support

We find an association between the median day to power crew deployments and political support for the ruling party (PNP) when running a bivariate regression at the unidad level (the lowest level grouping voters in Puerto Rico) (See Figure 4). For every additional one-day in the median wait-time for power restoration crew deployment, we observe a 0.009386 % decline in party support (**Figure 4**). This can be re-estimated as less than a 0.9386% decline in political party support for each additional *100 days* in the median wait-time for power restoration crew deployments.[8] While the magnitude of this effect might seem inconsequential, it is important to note that restoring power completely took more than 425 days after hurricane María and that Puerto Rico's gubernatorial election was decided by less than 2 percentage points. This finding builds on our prior work, where we find an association

[8] It is also worth noting that Reeves (2011) finds an effect of 1% benefit for the incumbent presidents where they issue disaster declarations. Healy and Malhotra (2009) also find an effect within a similar range: "We find that voters reward the incumbent presidential party for disaster relief spending (a 10% increase in relief spending in- creases incumbent vote share by 0.045 percentage points)..."

between crew deployments and electoral support for the ruling party (PNP) at the precinct level (Tormos-Aponte et al. n.d.). Additionally, the negative associations between sustained power restoration and political party support are targeted toward more territory-wide positions (i.e. the gubernatorial race).

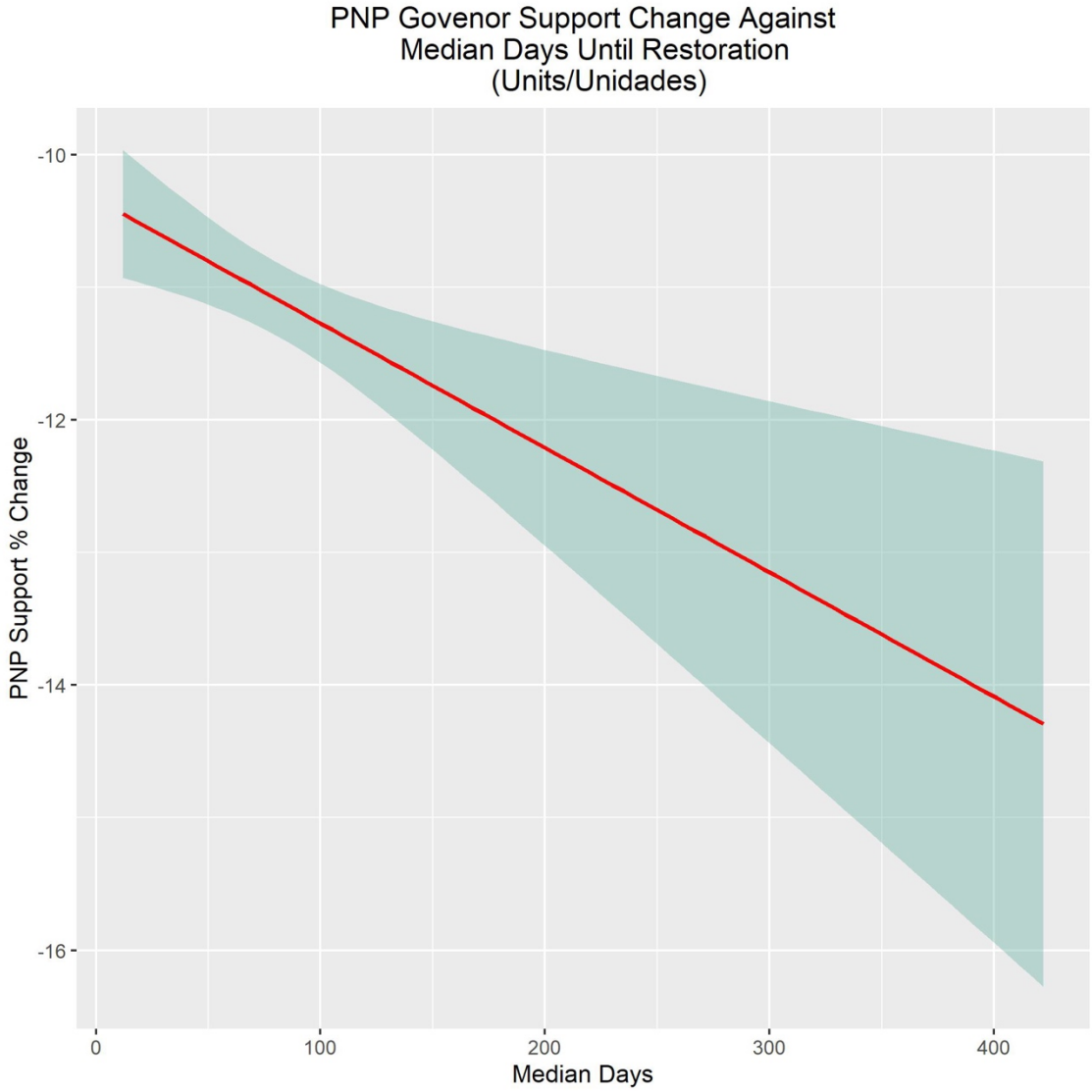

Figure 4: This figure represents the relationship median days until brigade crews were deployed to restore power to various unidades across Puerto Rico after Hurricane Maria and political support decline for the PNP party. The y-axis represents the median number of days until crews were deployed to that jurisdiction. The y-axis represents the difference in percentage of political support for the Partido Nuevo Progresista from 2016 to 2020.

In our stepwise regression models, we find a strong relationship between incumbency and ruling party support decline. Incumbency can be a liability for elected officials in the context of compounding disasters and an enduring fiscal crisis as was the case in Puerto Rico during the 2016-2020 electoral cycle. Incumbency is associated with the decline of party support across all models. Each incumbency variable represents whether or not a ruling party candidate was in office in 2017 (when Hurricane María made landfall) for the office examined in each model (governor, mayor, or representative). There is a distinct pattern of decline for PNP politicians specifically: being a PNP incumbent was associated with PNP support decline. At the gubernatorial level, having an incumbent PNP governor is associated with a 1.27% decrease in support (**Table 1**). The same holds true for mayors and representatives. A precinct with a PNP representative shows a -2.06% decline in support, while mayor PNP incumbency is an over 7% decline (**Table 2 and 3**).

We do not observe an association between crew deployments and electoral support for the ruling party (PNP) in our multivariate analyses (see Appendix Table A.3). Median days to crew deployment did not correlate with change in political support for the ruling party in any of our multivariate models, failing to support H_1.

Other Drivers of Political Support

We find evidence of various drivers of the decline in majority party support. Here we focus on discussing in greater detail the effects of voter turnout, third party support, local party organizational strength, and our measure of partisanship (PRPVI). For the dependent variable, PNP support decline, in our models, lower negative numbers are indicators of smaller declines in support while high negative numbers are indicators or larger declines of support. Table 1 compares the results of our backward and stepwise regression for our model of ruling party (PNP) support change in the gubernatorial race at the precinct level.[9]

[9] The initial model from which the algorithms were choosing variables to exclude or include have all variables in the original models (See Appendix).

Turnout

For most of the models at the precinct level of measurement, turnout has a significant association with support decline. For all models, increased turnout in a given election correlated with decreased levels of support for both parties. The magnitude of this phenomena varies, as it is much higher of a decrease in support for governor and representative elections (15.61% and 13.81% support decline, respectively) than for mayoral elections (5.39%).

Table 1: Political Support Change for ruling PNP in Gubernatorial Elections

	Dependent variable:	
	PNP Gov Support Change (%)	
	Backward	Stepwise
	(1)	(2)
PNP Incumbent	-1.267***	-1.270**
	(0.475)	(0.485)
Elderly Ratio	-21.622**	
	(10.303)	
Pop Decline	1,446.906	
	(1,006.995)	
Unit 77 PNP Share		7.148**
		(2.941)
Poverty Ratio	-5.317*	-6.823**
	(2.865)	(2.730)
Turnout %	-15.608***	-15.400***
	(0.858)	(0.855)
PD Support Share	-25.423**	-32.626***
	(10.828)	(10.732)
PRPVI	0.151**	0.137**
	(0.066)	(0.067)
Unit 77 PPD Share	-5.873**	
	(2.642)	
Unit 77 PD Share	-68.290***	-46.273**
	(21.869)	(21.698)
Constant	13.791***	4.942**
	(2.500)	(1.936)
Observations	110	110
R^2	0.819	0.813
Adjusted R^2	0.803	0.800
Residual Std. Error	2.048 (df = 100)	2.065 (df = 102)
F Statistic	50.356*** (df = 9; 100)	63.177*** (df = 7; 102)
Note:		*p<0.1; **p<0.05; ***p<0.01

Unit 77 (Party Strength) and Proyecto Dignidad (PD)

In our analysis of decline for the ruling PNP party in the gubernatorial elections, we find that increased municipal level party strength among the opposition Partido Popular Democrático (PPD) and emerging Proyecto Dignidad (PD) is associated with greater decline in support for the ruling PNP party. This is especially pronounced with the emerging PD party's Unit 77 share (68.29% PNP support decline). During the 2020 elections, Puerto Rico saw the rise of the Proyecto Dignidad (PD) party, which drew support from religious conservatives who broke their traditional allegiance with the PNP, arguing that the PNP leadership did not remain loyal to its conservative Christian base. At the precinct level in elections for governor, decline in support for the PNP was correlated with an increase in support for PD (a 25.42% change). These results show the religious conservative PD party's effectiveness in pulling support from the PNP party and forming a strong local organizational infrastructure within one electoral cycle.

The ruling PNP party, however, was able to use local organizational strength to reduce its loss of support during the 2020 gubernatorial elections (for every 1% change in ruling PNP party unit 77 votes, the PNP mitigated their loss of support by 7%). We find that This tactic was deployed through concerted and well coordinated efforts. Less than six months prior to the 2020 election, the PNP unilaterally reformed Puerto Rico's electoral law despite public concerns about the ways in which this reform afforded the ruling party a competitive advantage. Among other moves, the law centralized power within the Comisión Estatal de Elecciones (the territory's main elections authority) among ruling PNP party appointees and expanded early and absentee voting in Puerto Rico. Those who raised concern claimed that the PNP had expanded these forms of voting among demographic groups that had traditionally formed part of its base of electoral support. Further, by virtue of reforming this law unilaterally (a move deemed unconstitutional in most of the world's democracies), the ruling PNP party knew where to launch elaborate field operations while denying that information to its challengers. While the ruling PNP party argued that the COVID-19 pandemic had made early and absentee voting necessary, challenging parties were not afforded access to information about which demographic groups would be deemed eligible once the reform was adopted. Thus, challenging parties did not know where to focus their field operations. Further, the electoral reform stipulated that parties go to each eligible

voters' household to pick up their vote by hand, thereby affording the ruling PNP party an important advantage, given that the party already had a strong local party organizational infrastructure. Accordingly, the PNP managed to garner sizable shares of early and absentee votes.[10]

For mayoral elections, increased Unit 77 vote share for both PNP and for PPD led to reduced loss of support for the PNP party. While the association between increased local party strength of the ruling PNP party and reduced loss of PNP support is theoretically expected, we did not expect the opposition PPD local party organizational strength to be associated with reduced loss of support for its competitor, the ruling PNP party. Insofar as emerging parties portray the majority PNP and PPD parties as the same, their joint organizational strength might curtail the loss of support for the traditional majority parties. Thus, although being political rivals, the joint strength of the majority PNP and PPD parties may contribute to their political survival at a time in which sizable shares of the electorate have shifted their support for emerging parties. We do not observe any Unit 77 party power associations for representative elections.

Puerto Rico Partisan Voter Index (PRPVI)

The Puerto Rico Partisan Voter Index (PRPVI) measures the extent to which a political locality is a "swing" locality. In our models, higher values for PRPVI reflect more partisanship in a given Puerto Rican political locality. Here, we observe a relationship between PRPVI and support decline in the gubernatorial and mayoral models. Mayoral elections at the precinct level show that higher partisanship is associated with greater loss of political support for the PNP. We see this opposite phenomenon for the governor election. That is, while partisanship can help mitigate loss of support for gubernatorial candidates, it does not provide advantages at the mayoral level. However, these relationships are weak (less than 0.2% for both models). We do not see this relationship for representative elections.

[10] https://www.washingtonpost.com/politics/2020/11/18/puerto-ricos-left-won-seats-legislature-first-time-heres-why-that-matters/

Table 2: Mayoral Elections Political Support Change for PNP

	Dependent variable:	
	PNP May Support Change (%)	
	Backward	Stepwise
	(1)	(2)
PNP Incumbent	-7.261***	-7.988***
	(1.311)	(1.272)
Pop Density	-219.543	
	(134.448)	
Elderly Ratio	45.741	
	(27.636)	
Church Density	-1,148.657*	
	(663.800)	
Poverty Ratio	-19.416**	
	(8.372)	
Turnout %	-5.388**	-6.071***
	(2.246)	(2.132)
PRPVI	-0.160**	-0.100
	(0.072)	(0.067)
Unit 77 PNP Share	59.176***	52.852***
	(13.025)	(12.259)
Unit 77 PPD Share	35.244***	27.971**
	(13.107)	(11.743)
Constant	-38.586***	-36.742***
	(14.688)	(11.037)
Observations	110	110
R^2	0.423	0.369
Adjusted R^2	0.371	0.339
Residual Std. Error	5.266 (df = 100)	5.399 (df = 104)
F Statistic	8.157*** (df = 9; 100)	12.187*** (df = 5; 104)
Note:		*p<0.1; **p<0.05; ***p<0.01

Table 3: Representative Elections Political Support Change for PNP

	Dependent variable:	
	PNP Rep Support Change (%)	
	Backward	Stepwise
	(1)	(2)
PNP Incumbent	-2.058***	-2.058***
	(0.585)	(0.585)
Elderly Ratio	23.966*	23.966*
	(13.606)	(13.606)
Minority Pop Density	3.499	3.499
	(2.326)	(2.326)
Church Density	-865.077**	-865.077**
	(336.949)	(336.949)
Turnout %	-13.805***	-13.805***
	(1.110)	(1.110)
Constant	-4.663*	-4.663*
	(2.528)	(2.528)
Observations	110	110
R^2	0.650	0.650
Adjusted R^2	0.633	0.633
Residual Std. Error (df = 104)	2.776	2.776
F Statistic (df = 5; 104)	38.572***	38.572***
Note:	*p<0.1; **p<0.05; ***p<0.01	

Population Decline as (not) an Explainer

Population decline does not explain any of the declines in support for the PNP between 2016 and 2020 in Puerto Rico. Interestingly, the ruling PNP party used the rhetoric of population decline as an explanation as to why their support declined so heavily in the span of four years. Our research shows that this is not the case, but rather other factors are much better predictors in party support decline rather than a reduction in population.

DISCUSSION

This study answers calls to place politics in the context of time (Pierson 2011). We explore factors understood to be consequential for the electoral performance of incumbent political parties in the wake of uneven and ineffective disaster resource allocation. We find a relationship between power restoration crew delays in bivariate analyses (see also Tormos-Aponte et al. n.d.), but do not find this association in our multivariate analyses. Power restoration, however, is one aspect of disaster resource allocations. In the case of hurricane María, power restoration took place 3 years prior to the 2020 elections. The electoral consequences of scandals can fade over time (Healy and Lenz 2014).

The negative effect of incumbency may be indicative of the electoral consequences of unequal disaster resource allocations and government responsiveness. In the case of Puerto Rico, incumbency also made the ruling PNP vulnerable due to the scandals that led to the ouster of the PNP governor Ricardo Rosselló, among other controversies. The Ricky Renuncia protests that led to the ouster of Ricardo Rosselló likely catalyzed voter turnout and energies within the electorate to express their accumulated rage in the ballot box, thus motivating the notion that the electorate may be out of power, but not powerless.

At the precinct level in the gubernatorial race, decline in support for the incumbent PNP is associated with incumbency, larger elderly populations, larger populations in poverty, turnout, and the shift to the PD party. We see similar patterns across various models as well. Some of these, like vulnerable populations, were more likely to get serviced later and thus there could be a political connection (Tormos-Aponte et al. 2021). Incumbency, however, still offered the ruling party advantages, enabling them to enact an unpopular electoral reform months prior to the 2020 elections that allowed them to capitalize on their municipal level party organizational strength.

Further research is needed on the effects of compounding disasters on electoral outcomes. In Puerto Rico, between 2016 and 2020, both natural hazard events such as Hurricane María and the 2019-2020 earthquakes, and political disasters like the protests against then-governor Ricardo Rosselló in 2019 and the privatization of the power grid, took place. Here, these natural hazards, response to them, and other political disasters have possible compounding effects on electoral consequences that are not fully accounted for with

this analysis. Additionally, we found associations between some of the control demographic variables and decline for political support. For example, higher levels of poverty are correlated with larger measures of PNP support decline for certain models. This highlights the need to explore the ways in which demographic characteristics can add to the understanding of political support in the context of disaster.

For future research, we call for a greater comparative scholarship between climate change as a *long-term process* and climate impacts that have, and continue to be experienced. That is, the public's response in the immediate aftermath of a disaster, and the sluggish / non-collective response (although very much bracketed along axes of social difference) with climate inaction and mediocre climate mitigation and adaptation policies deserves greater attention. That is, contrasting different temporal scales of public demands may be important in informing demands for climate action.

CONCLUSION

We do not find an electorally favorable effect of the deployment of crews on PNP vote shares when examined in multivariate models, suggesting that there might be some other effects at play. As stated in the section above, it is possible that our measure of incumbency may be capturing the electoral effect of the ruling party's management of the various compounding natural and political disasters that plagued Puerto Rico over more than two electoral cycles. Additionally, we observe that the gubernatorial candidate was more vulnerable to electoral punishment than district representatives and mayors. These observations may be indicative of the subnationalization of local politics around the figure of the state executive, and in this case, the colony.

Our qualitative observations provide further insight about the differential vulnerability of gubernatorial versus mayoral incumbents. In the ruling party supportive municipality of Las Piedras, Puerto Rico, crews had arrived and started their work to restore power.[11] Yet, the mayor learned that the crews were leaving to a different region before restoring power in Las Piedras. The mayor instructed municipal employees to use municipal government trucks to block the exit of the power restoration crews. Word spread quickly in

[11] Interview with an anonymous local government official.

town about the situation that had erupted, and within minutes, a sizable crowd turned out and formed a protest. Shortly thereafter, while the crews remained barred from leaving, the mayor of Las Piedras got a call from the governor. The mayor explained the situation. The crews were ultimately instructed to stay in Las Piedras and finish restoring power in the center of Las Piedras. Our findings suggest that voters expect more than performances from their elected leaders, that feedback can quickly turn negative due to poor performance, and that disaster resource allocations elicit electoral and non-electoral forms of mobilization.

We caution that these associations are measured at aggregated scales (e.g. precinct), and more spatially-granular estimations may better reflect the impact of power restoration delays on political support (unidades). We suggest that the impacts of power restoration delay could decay over time, given that hurricane María and restoration processes that followed unfolded in 2017 and 2018 – three years before the 2020 election. It is possible that a larger effect size would be found if hurricane María occurred closer to the 2020 election. Hence, we caution against any interpretation of our results that otherwise convey disasters mean little for elections, and instead emphasize the need to contextualize these effect sizes across space- and time scales. Our limitations elaborate the importance of disaggregating data analyses, and evaluating the temporal dynamics of when climate impacts – and elections – occur. We explored the relationships between power restoration and political support at the precinct scale. Although this is conducive for measuring political outcomes as the aggregated area of vote totals, the aggregation of crew deployment data pose challenges for capturing nuanced differences in disaster resource allocation and response (Tormos-Aponte et al. 2021). As we aggregate to the precinct level of government, we omit important distinctions in power restoration from neighborhood to neighborhood, street to street, and address to address. Additionally, our calculation of power restoration crew deployment (median days until crew deployment) also does not capture multiple blackouts, multiple visits, or other dimensions of these data. In future research, we hope to find another measure for disaster response and power restoration that incorporates these other dimensions and nuances.

Further, due to using precincts as our observation level, we are limited to a small number of observations (N). Precincts reach the threshold of $N \geq 100$ with 110 precincts in Puerto Rico. Although the assumption for OLS is to have more observations than

independent variables, having just over one-hundred observations still poses a risk for low statistical power and inflated effect size estimation. In future research, we hope to use the unidad level (over 900 observations) as a way to increase observations for our statistical analysis to mitigate issues with sample size.

Lastly, in our analysis we use population decline as a measure of movement of people away from Puerto Rico post-Hurricane María. However, migration in the short term is a much harder statistical phenomena to measure. There are instances of short-term migration away from the island that could possibly affect political outcomes that are not captured in our analysis. Although this limitation is difficult to overcome, we assume this missing variable has little effect on our results for this particular analysis, but could possibly need to be included in future studies.

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APPENDIX

Correlations of Independent Variables

For select variables, we tested to see if there were any correlations between 2016 and 2019/2020 to find if there were any justifications using a dynamic over stagnant measure. For example, we tested to see if there is a correlation between population density in 2016 and 2019. For this measure, we found the correlations to be highly correlated (0.99), and thus we opted to use population density of 2016 as a stagnant measure across years. We did the same for elderly and minority population densities, church density, poverty rates, turnout, and our PRPVI measure. We found all these measures to be highly correlated across years, levels of government, and elected position.

Table A.1: Correlations between Yearly Measure of Covariates.

Level of Government	Variables	Correlation
Precinct	Population Density 2016 v. 2019	.099
	Elderly Population Density 2016 v. 2019	0.92
	Minority Population Density 2016 v. 2019	0.71
	Church Density 2016 v. 2019	0.99
	Poverty Rates 2016 v. 2019	0.96
	Turnout for Elections 2016 v. 2020	0.97-0.98
	PR PVI 2012-2016 v. 2016-2020	0.70-0.79
District	Population Density 2016 v. 2019	0.92
	Elderly Population Density 2016 v. 2019	0.97
	Minority Population Density 2016 v. 2019	0.70
	Church Density 2016 v. 2019	0.99
	Poverty Rates 2016 v. 2019	0.98
	Turnout for Elections 2016 v. 2020	0.84
	PR PVI 2012-2016 v. 2016-2020	0.79
Municipality	Population Density 2016 v. 2019	0.99

Elderly Population Density 2016 v. 2019	0.92
Minority Population Density 2016 v. 2019	0.70
Church Density 2016 v. 2019	0.99
Poverty Rates 2016 v. 2019	0.94
Turnout for Elections 2016 v. 2020	0.99
PR PVI 2012-2016 v. 2016-2020	0.54/0.71

For our measurements of disaster response, we also conducted a similar correlation test at every level of government. Interestingly, our measures for days with sustained power (nightlight data) and power restoration crew deployment (crew data) were highly *uncorrelated*. This finding warrants further exploration into the relationship between power restoration and government response, including the relationship between government action and the actual results of restoring electricity.

Table A.2: Correlations between Nightlight Data and Crew Data

Level of Government	Correlation
Precinct	-0.10
District	-0.14
Municipality	0.27

Model Assumption and Specifications

Each individual model, after assumptions testing, contains a statistically viable and robust number of theoretically viable covariates that reflect possible influences on electoral support decline. Each model was tested against 11 ordinary least squares (OLS) assumptions, including testing for multicollinearity and heteroskedasticity. For three different models at the precinct level, the Governor PNP Decline model, the Mayor PNP Decline model, and the Representative PPD Decline model, we omitted San Sebastián precinct 33 due to the outsized influence of this observation. Additionally, for models measuring outcomes for the mayoral elections, the measures for mayoral votes for the Proyeto Dignidad (PD) party both as its

own measure and for Unit 77 were omitted from the models due to violation of variability in independent variable values. We ran all models with robust standard errors.

Table A.3: Coefficients Across Models

	Precinct Representative PNP	**Precinct Representative PPD**	**Precinct Governor PNP**	**Precinct Governor PPD**	**Precinct Mayor PNP**	**Precinct Mayor PPD**	**District Representative PNP**	**District Representative PPD**	**Municipal Governor PNP**	**Municipal Governor PPD**	**Municipality Mayor PNP**	**Municipality Mayor PPD**
(Intercept)	-2.544 (6.303)	-18.550 ** (6.183)	6.686 † (3.496)	-7.103 (5.227)	-2.112 (8.481)	-16.921 * (7.967)	-7.845 (7.172)	-33.344 *** (7.537)	-0.918 (6.930)	-20.211 ** (6.667)	-2.955 (10.740)	-27.125 * (10.261)
Crew days	0.003 (0.013)	0.008 (0.017)	0.001 (0.010)	0.009 (0.015)	-0.016 (0.026)	0.012 (0.024)	-0.003 (0.024)	0.021 (0.024)	-0.008 (0.014)	0.006 (0.019)	-0.016 (0.029)	0.001 (0.030)
NTL days	-0.003 † (0.002)	0.003 (0.002)	-0.000 (0.001)	-0.000 (0.002)	-0.003 (0.003)	-0.002 (0.004)	0.001 (0.002)	-0.004 † (0.002)	-0.001 (0.004)	-0.004 * (0.003)	-0.005 (0.004)	-0.002 (0.004)
Rep. PNP Incumbent	-2.559 *** (0.702)	5.670 *** (0.746)					-1.601 * (0.736)	4.828 *** (0.713)				
Gov. PNP Incumbent			-1.292 * (0.599)	2.977 *** (0.685)					-1.889 * (0.904)	2.676 *** (0.991)		
May. PNP Incumbent					-7.872 *** (1.678)	11.032 *** (1.608)					-7.672 *** (1.935)	11.266 *** (1.742)
Population Density	51.991 (78.020)	-146.745 (89.969)	-33.161 (68.592)	-90.565 (109.930)	-231.720 (180.360)	-94.228 (193.270)	-184.988 † (102.11)	198.823 * (79.671)	130.194 (92.488)	107.436 † (59.521)	1.622 (85.971)	15.364 (111.69)

Elderly Population	17.421 (14.834)	-11.961 (17.516)	-12.095 (13.923)	-3.827 (16.608)	15.022 (29.548)	-65.906 * (30.775)	13.584 (20.009)	29.907 (23.433)	-24.936 (36.031)	-21.369 (23.293)	33.933 (38.190)	-70.881 * (34.295)
Minority Population	3.479 (2.532)	5.708 † (2.977)	0.571 (1.923)	-0.162 (2.131)	1.817 (5.605)	2.880 (6.105)	1.660 (3.164)	5.326 . (2.532)	-0.579 (4.034)	2.604 (4.039)	-0.326 (6.366)	1.033 (7.035)
Population Decline	-199.222 (1383.936)	1916.115 (1579.2)	1435.234 † (734.02)	1785.780 (1116.6)	1654.383 (2722.5)	1756.791 (2355.9)	502.654 (822.72)	-729.991 (746.985)	-2848.743 (2379.0)	-1284.404 (1664.883)	1423.887 (2327.5)	-587.072 (2567.4)
Church Density	-943.323 * (370.523)	-176.369 (383.5)	-21.507 (440.62)	81.219 (453.43)	-1425.409 † (754.94)	755.041 (719.42)	-1450.156 (930.10)	1200.209 (724.395)	1706.320 (1323.6)	1233.626 * (610.775)	-851.073 (936.76)	2485.421 * (990.58)
Poverty Density	0.011 (4.876)	6.813 (5.035)	-8.912 * (4.281)	4.820 (4.316)	-16.363 (11.064)	15.533 (9.509)	-3.445 (4.564)	-1.452 (5.397)	-1.429 (7.871)	11.602 † (8.202)	-24.207 * (10.781)	8.737 (14.032)
Turnout (Rep.)	-14.260 *** (1.191)	-7.763 ** (2.546)					-10.750 (9.131)	0.337 (7.436)				
Turnout (Gov.)			-12.533 ** (4.105)	-8.719 *** (1.045)					-0.168 (0.504)	-0.473 (0.596)		
Turnout (May.)					-3.497 (7.608)	-9.159 *** (2.657)					-1.374 (0.869)	0.706 (0.989)
PD Vote (Rep.)	-13.494 * (9.257)	1.808 (9.125)					-14.821 * (6.105)	12.989 (8.206)				
PD Vote			-28.31	-6.342					-19.40	-2.271		

(Gov.)			9 ** (10.379)	(14.913)					8 (20.088)	(24.852)		
PRPVI (Rep.)	-0.070 (0.071)	0.253 * (0.115)					-0.206 † (0.102)	0.217 † (0.110)				
PRPVI (Gov.)			-49.131 * (23.712)	6.398 (37.704)					0.140 (0.173)	0.122 (0.156)		
PRPVI (May.)					-0.094 (0.008)	0.082 (0.072)					-0.261 * (0.099)	0.010 (0.091)
Unit 77 PNP (Rep.)	2.961 (7.040)	7.521 (6.398)					9.440 (6.838)					
Unit 77 PPD (Rep.)	-2.404 (6.784)	15.815 * (7.134)						23.125 ** (6.540)				
Unit 77 PNP (Gov.)			6.132 † (3.052)									
Unit 77 PPD (Gov.)				5.410 (4.565)					-5.184 (6.538)	14.071 * (5.659)		
Unit 77 PD (Gov.)			-49.131 * (23.712)	6.398 (37.704)					-50.234 † (28.682)	32.211 (47.661)		
Unit 77 PNP (May.)						26.628 *** (6.292)					27.274 ** (8.348)	
Unit							30.84					45.15

77 PPD (May.)							6 *** (6.95 9)					7 *** (7.88 9)
R-squared	0.675	0.476	0.567	0.528	0.375	0.561	0.476	0.786	0.238	0.286	0.413	0.527
N	110	110	110	110	110	110	40	40	78	78	78	78
*Significance: *** = p < 0.001; ** = p < 0.01; * = p < 0.05; † = p < 0.10*												

Table A.4: Municipal Support Decline

Municipality	**Governor PNP Decline**	**Governor PPD Decline**	**Mayor PNP Decline**	**Mayor PPD Decline**	**Rep. PNP Decline**	**Rep. PPD Decline**
Adjuntas	-16.3418	-4.93217	-14.868	3.380933	-16.949	3.741574
Aguada	-10.7761	-3.41737	-10.1783	2.186242	-13.0464	1.286688
Aguadilla	-9.02519	-1.61816	-12.9506	4.909805	-10.3581	-1.8805
Aguas Buenas	-12.0472	-8.68082	-11.4372	-11.9167	-12.2069	-7.37976
Aibonito	-6.95424	-9.06273	-12.2366	2.757251	-10.6249	-3.93443
Añasco	-8.91232	-6.40885	0.006961	-13.4808	-8.97227	-4.85866
Arecibo	-10.0808	-1.21004	-23.0491	15.57	-13.1627	-0.39894
Arroyo	-8.85145	-8.33785	-21.6687	0.605524	-11.6183	-8.11106
Barceloneta	-10.2543	-5.56699	-13.9025	5.55095	-14.4054	-5.08743
Barranquitas	-7.47399	-4.16945	-10.3384	5.595412	-13.6863	3.253266
Bayamón	-7.08155	-6.44008	-3.97935	-4.57903	-10.2775	-5.45994
Cabo Rojo	-6.87539	-9.30594	-4.31182	-10.1898	-9.62349	-8.70272
Caguas	-6.33552	-9.30355	2.22939	-17.462	-7.89518	-10.973
Camuy	-8.80819	-1.97155	-1.32745	-3.2537	-6.29082	-1.1609
Canóvanas	-8.68594	-6.18077	-5.39487	-5.231	-10.2597	-7.19071
Carolina	-7.02805	-8.60724	-3.16578	-9.94629	-8.38957	-10.7144
Cataño	-9.40684	-8.45073	-0.10416	-11.4872	-13.7006	-6.23492

Cayey	-5.83908	-11.31	-5.67213	-6.33785	-7.45647	-10.606
Ceiba	-6.69707	-3.25235	0.768839	-3.81292	-14.4125	3.845934
Ciales	-12.686	-7.07853	-8.24767	-11.0516	-17.633	-7.03848
Cidra	-8.49014	-7.74205	-19.5196	7.980425	-12.9001	-5.92762
Coamo	-7.89929	-8.55211	-7.98131	-4.10799	-8.48421	-7.74732
Comerío	-10.6808	-10.0529	-8.33997	-7.50673	-13.6736	-6.75065
Corozal	-7.33102	-9.57383	4.476635	-14.0239	-12.2286	-8.81951
Culebra	-3.53709	-7.00549	8.200549	-10.0962	-10.3297	-8.04258
Dorado	-7.78509	-9.4221	-10.8163	-1.93769	-10.1646	-9.59533
Fajardo	-7.72489	-5.08389	-7.63763	-5.97828	-13.9335	0.848877
Florida	-15.5563	-9.69988	0.849506	-19.6914	-16.7972	-10.2517
Guánica	-15.4527	-11.9214	-21.4151	-7.9462	-11.8088	-6.27853
Guayama	-7.97752	-9.65603	-8.59192	-4.97055	-9.14276	-7.43134
Guayanilla	-7.612	-8.88993	1.868712	-12.7828	-10.1342	-11.5509
Guaynabo	-5.18849	-6.75391	-9.66052	0.971557	-9.79957	-4.37508
Gurabo	-7.57311	-7.57016	-2.89704	-7.81787	-9.03989	-6.42407
Hatillo	-10.3046	-5.1952	-3.86045	-8.83931	-10.2651	-6.71462
Hormigueros	-7.34967	-10.3018	-5.74218	-7.94485	-8.59504	-11.0622
Humacao	-6.13274	-7.45255	0.604877	-9.58827	-9.96678	-5.08897
Isabela	-7.26507	0.311135	-3.84581	-2.23798	-8.17927	-1.28934
Jayuya	-8.23677	-5.49566	-1.51983	-5.60948	-8.15024	-3.86571
Juana Díaz	-8.8929	-6.82188	-7.68725	-3.53355	-11.2513	-4.19375
Juncos	-7.55685	-7.86194	-2.52256	-8.38733	-7.56585	-7.47752
Lajas	-5.95995	-7.55645	2.556423	-11.19	-3.81556	-9.49688
Lares	-10.1895	1.827908	-3.80925	1.564396	-5.48264	-6.05821
Las Marías	-1.46451	-1.04668	0.559282	-1.18944	-0.93668	-0.92815
Las Piedras	-8.00011	-7.23147	-4.11824	-9.30369	-10.4818	-6.17987
Loíza	-10.5212	-2.25271	-11.2588	4.539907	-11.5051	-0.36944
Luquillo	-9.13469	-8.9719	-4.26768	-10.253	-13.9487	-3.77406

Manatí	-12.912	-6.00754	-18.1737	1.735853	-16.9074	-3.14808
Maricao	-8.59849	-0.96371	-3.6745	4.080903	-9.07009	-2.17562
Maunabo	-5.00427	-4.86907	-1.52533	-5.62695	-5.36405	-4.70014
Mayagüez	-5.24504	-6.51601	0.38193	-11.033	-5.67161	-4.23587
Moca	-10.6177	-2.01545	-5.05621	-5.72667	-11.0024	-2.83588
Morovis	-9.40757	-5.78193	-12.2516	3.619937	-10.1417	-6.65431
Naguabo	-10.0642	-5.22072	-22.4536	11.08109	-14.0063	1.935189
Naranjito	-7.82798	-9.62479	-8.79782	-1.19253	-16.1799	-4.4828
Orocovis	-11.394	-7.68227	-7.47032	-6.4466	-17.2506	-0.81219
Patillas	-6.24918	-14.6967	-3.55558	-13.0838	-7.14022	-10.0154
Peñuelas	-6.83633	-4.05913	-2.2741	-0.9515	-8.78195	-4.29621
Ponce	-7.86472	-6.46313	-14.191	5.831716	-11.3221	-6.56313
Quebradillas	-11.8116	-5.0387	-11.7652	-4.72156	-9.94008	-8.18317
Rincón	-8.58702	-5.61325	-10.3233	-9.28001	-9.22413	-4.98861
Río Grande	-8.00705	-3.72609	-9.90697	2.129732	-10.9139	-0.98505
Sabana Grande	-7.61135	-9.14533	-6.73959	-6.54698	-6.89545	-10.0348
Salinas	-7.69567	-8.96551	-6.51488	-6.00171	-8.47144	-7.18662
San Germán	-6.98343	-5.90343	1.320456	-11.1245	-9.88371	-5.0132
San Juan	-5.23986	-8.64525	-6.10372	-17.7722	-7.62369	-8.74855
San Lorenzo	-6.79122	-7.65534	-0.1591	-10.7285	-8.08244	-8.44693
San Sebastián	-45.7043	-24.9153	-18.6477	-26.0298	-40.867	4.346365
Santa Isabel	-7.11568	-4.75128	-3.46966	0.577521	-9.55769	-0.63613
Toa Alta	-8.68905	-8.39654	-7.45332	-8.80341	-9.20862	-9.10716
Toa Baja	-8.13657	-8.24576	-10.8948	-3.34502	-8.70773	-5.51996
Trujillo Alto	-5.54559	-7.77935	1.95283	-10.8248	-6.75448	-9.77924
Utuado	-11.0812	-7.02123	-4.58765	-10.305	-7.48589	-6.31703
Vega Alta	-7.78268	-7.1733	-4.41764	-5.58112	-8.7733	-7.6153
Vega Baja	-9.47924	-8.47078	-4.80701	-8.92755	-11.1566	-9.06992
Vieques	-6.58061	-7.57111	1.464451	-11.6859	-9.99076	-5.88155

Villalba	-13.2662	-6.17983	-16.5222	3.649332	-17.1736	-0.80786
Yabucoa	-8.90817	-6.38662	-9.87785	-1.55815	-10.2782	-3.80034
Yauco	-8.78733	-8.67278	-4.52763	-7.06607	-10.9764	-8.98559

Table A.3: District Support Decline

District	Governor PNP Decline	Governor PPD Decline	Mayor PNP Decline	Mayor PPD Decline	Rep. PNP Decline	Rep. PPD Decline
1	-6.7949	-8.84861	-7.16815	-18.9089	-8.61024	-10.5044
2	-5.58846	-9.39301	-5.62943	-18.8265	-7.64002	-10.0561
3	-6.5293	-8.15181	-7.221	-16.5646	-8.06212	-11.3448
4	-3.44059	-9.09144	-5.6908	-18.9748	-7.38993	-4.38394
5	-7.22551	-7.08858	-8.93676	-6.41954	-10.0277	-6.40593
6	-4.52779	-6.17225	-4.67256	-3.4885	-7.84766	-4.12571
7	-7.31729	-6.90557	-3.96938	-4.74187	-10.7256	-5.58253
8	-7.86691	-7.28326	-4.03747	-5.31688	-11.6708	-6.64106
9	-8.97056	-8.03097	-7.22906	-8.00599	-9.92936	-8.27682
10	-8.13657	-8.24576	-10.8948	-3.34502	-8.70773	-5.51996
11	-9.12195	-9.48567	-7.85326	-6.42084	-10.461	-9.92078
12	-8.60341	-5.53777	-8.6833	-0.72667	-10.5083	-5.55034
13	-13.104	-6.25676	-14.9785	0.02652	-17.1385	-4.80623
14	-9.6403	-1.41423	-19.7335	12.26939	-12.5194	-1.20533
15	-10.4799	-4.28517	-5.31757	-6.02199	-8.74876	-5.52949
16	-8.74904	-2.94142	-3.95996	-4.16013	-8.59408	-0.88451
17	-9.81398	-1.95278	-10.1253	0.609729	-10.6681	-2.61921
18	-9.3493	-4.56751	-6.23505	-5.04988	-10.5941	-1.73352
19	-5.31033	-6.19172	0.518136	-10.6241	-5.62158	-3.79965
20	-7.12835	-8.87646	-3.15202	-10.4236	-10.0374	-8.64636

21	-9.82389	-8.94048	-7.5035	-7.77259	-8.44192	-8.54368
22	-11.573	-3.3257	-6.1667	-2.71743	-8.72773	-3.5864
23	-7.26941	-6.72011	-3.50647	-3.84847	-9.8948	-7.72286
24	-7.83482	-6.42527	-13.9507	4.654609	-10.9942	-7.5269
25	-8.31304	-6.77579	-11.0064	2.190398	-11.5193	-4.30454
26	-10.6995	-6.85405	-10.8969	-1.08829	-15.0739	-1.70948
27	-6.65351	-7.26737	-7.42175	-0.34396	-8.31308	-4.19347
28	-8.16027	-9.28823	-3.4892	-6.88316	-13.9768	-6.10568
29	-7.09492	-9.6232	-12.2219	0.431798	-10.0321	-8.39279
30	-8.00427	-9.14257	-10.6511	-4.1546	-9.3294	-7.6421
31	-6.90751	-9.07953	0.218263	-13.4026	-8.66488	-8.60259
32	-6.39676	-8.75483	1.790392	-16.8421	-7.67669	-11.0898
33	-7.70316	-7.61356	-2.66646	-9.15278	-8.64124	-7.34033
34	-7.51858	-8.40421	-5.17923	-7.20975	-8.60694	-6.48064
35	-7.17217	-6.79841	-6.31167	-3.43669	-11.0609	-3.15716
36	-7.47416	-5.68736	-4.56042	-6.15278	-12.6649	-0.64591
37	-9.11115	-4.05512	-9.19743	0.907626	-11.4861	-2.33031
38	-7.54217	-7.4409	-0.62239	-9.32765	-8.31878	-10.7112
39	-6.52041	-8.72911	-1.57877	-11.1374	-7.10367	-10.4645
40	-6.35108	-8.17529	-4.0664	-8.51171	-8.93743	-9.42322

Table A.4: Precinct Support Decline

Precinct	**Governor PNP Decline**	**Governor PPD Decline**	**Mayor PNP Decline**	**Mayor PPD Decline**	**Rep. PNP Decline**	**Rep. PPD Decline**
San Juan 001	-6.7949	-8.84861	-7.16815	-18.9089	-8.61024	-10.5044
San Juan 002	-5.58846	-9.39301	-5.62943	-18.8265	-7.64002	-10.0561

San Juan 003	-6.5293	-8.15181	-7.221	-16.5646	-8.06212	-11.3448
San Juan 004	-3.44059	-9.09144	-5.6908	-18.9748	-7.38993	-4.38394
San Juan 005	-3.13743	-6.83367	-3.67734	-13.0204	-5.37041	-7.72568
Guaynabo 006	-7.59167	-6.20301	-12.2892	3.802763	-12.9464	-4.5672
Guaynabo 007	-3.6454	-7.08951	-7.93728	-0.84875	-7.80071	-4.22386
Cataño 008	-9.40684	-8.45073	-0.10416	-11.4872	-13.7006	-6.23492
Bayamón009	-0.72332	-1.42373	-0.40136	-0.88878	-1.17287	-1.26072
Bayamón 010	-7.31729	-6.90557	-3.96938	-4.74187	-10.7256	-5.58253
Bayamón 011	-7.86691	-7.28326	-4.03747	-5.31688	-11.6708	-6.64106
Bayamón 012	-9.75162	-5.86795	-4.64635	-4.77703	-12.749	-4.09097
Toa Alta 013	-8.68905	-8.39654	-7.45332	-8.80341	-9.20862	-9.10716
Toa Baja 014	-8.13657	-8.24576	-10.8948	-3.34502	-8.70773	-5.51996
Dorado 015	-7.78509	-9.4221	-10.8163	-1.93769	-10.1646	-9.59533
Vega Alta 016	-9.02541	-8.32494	-5.83475	-7.18019	-10.0837	-8.67553
Vega Alta 017	-4.72382	-3.24683	-1.3334	0.191004	-5.98133	-4.00684
Vega Baja 018	-11.3375	-10.9228	-5.64676	-12.3931	-11.4178	-11.8082
Vega Baja 019	-8.27512	-6.80302	-4.33758	-6.53497	-11.2275	-7.22509
Morovis 020	-9.40757	-5.78193	-12.2516	3.619937	-10.1417	-6.65431
Manatí- 021	-10.2996	-4.92539	-13.6185	0.707436	-12.9646	-2.83471
Manatí 022	-16.3627	-7.45825	-24.1669	3.031152	-22.0917	-3.59781
Ciales 023	-12.686	-7.07853	-8.24767	-11.0516	-17.633	-7.03848
Florida 024	-15.5563	-9.69988	0.849506	-19.6914	-16.7972	-10.2517
Barceloneta 025	-10.2543	-5.56699	-13.9025	5.55095	-14.4054	-5.08743
Arecibo 026	-11.6697	-1.57245	-26.227	17.04325	-14.5414	2.00541
Arecibo 027	-9.78131	-1.14097	-22.4698	15.3077	-12.8888	-0.8346
Hatillo 028	-8.61237	-2.89905	-3.51959	-5.26768	-10.0767	-3.32046
Hatillo 029	-11.1293	-6.32213	-4.03301	-10.6091	-10.3737	-8.38363
Camuy 030	-8.80819	-1.97155	-1.32745	-3.2537	-6.29082	-1.1609
Quebradillas 031	-11.8116	-5.0387	-11.7652	-4.72156	-9.94008	-8.18317

Isabela 032	-7.26507	0.311135	-3.84581	-2.23798	-8.17927	-1.28934
San Sebastián 033	-45.7043	-24.9153	-18.6477	-26.0298	-40.867	4.346365
Las Marías 034	-1.46451	-1.04668	0.559282	-1.18944	-0.93668	-0.92815
Aguadilla 035	-9.02519	-1.61816	-12.9506	4.909805	-10.3581	-1.8805
Moca 036	-11.3972	-2.7099	-5.50434	-6.91298	-11.4259	-4.03622
Moca 037	-2.8026	3.395815	-0.23285	4.435847	-5.69602	6.704446
Aguada 038	-10.7761	-3.41737	-10.1783	2.186242	-13.0464	1.286688
Rincón 039	-8.58702	-5.61325	-10.3233	-9.28001	-9.22413	-4.98861
Añasco 040	-8.91232	-6.40885	0.006961	-13.4808	-8.97227	-4.85866
Mayagüez 041	-5.95456	-7.88287	-0.89441	-11.8236	-6.35492	-7.04457
Mayagüez 042	-5.20385	-6.43945	0.45433	-10.9867	-5.63128	-4.07994
San Germán 043	-6.17295	-4.29298	0.699211	-7.7499	-5.68474	-1.67336
San Germán 044	-7.34404	-6.61504	1.645724	-12.6542	-11.8488	-6.54428
Hormigueros 045	-7.34967	-10.3018	-5.74218	-7.94485	-8.59504	-11.0622
Cabo Rojo 046	-6.87539	-9.30594	-4.31182	-10.1898	-9.62349	-8.70272
Lajas 047	-5.95995	-7.55645	2.556423	-11.19	-3.81556	-9.49688
Guánica 048	-15.4527	-11.9214	-21.4151	-7.9462	-11.8088	-6.27853
Sabana Grande 049	-7.61135	-9.14533	-6.73959	-6.54698	-6.89545	-10.0348
Maricao 050	-8.59849	-0.96371	-3.6745	4.080903	-9.07009	-2.17562
Yauco 051	-15.5396	-11.9326	-12.1743	-9.87526	-17.1685	-10.626
Yauco 052	-6.53039	-7.59452	-1.98446	-6.13638	-8.91418	-8.46355
Lares 053	-10.1895	1.827908	-3.80925	1.564396	-5.48264	-6.05821
Utuado 054	-11.0812	-7.02123	-4.58765	-10.305	-7.48589	-6.31703
Adjuntas 055	-16.3418	-4.93217	-14.868	3.380933	-16.949	3.741574
Jayuya 056	-5.86253	-2.34492	1.297798	-1.49307	-4.50726	-0.63869
Jayuya 057	-9.79393	-7.96958	-3.43794	-8.78821	-10.7608	-6.25762
Guayanilla 058	-7.612	-8.88993	1.868712	-12.7828	-10.1342	-11.5509
Peñuelas 059	-6.83633	-4.05913	-2.2741	-0.9515	-8.78195	-4.29621
Ponce 060	-8.88148	-6.19053	-14.7566	7.354169	-12.9823	-6.39641

Ponce 061	-7.83482	-6.42527	-13.9507	4.654609	-10.9942	-7.5269
Ponce 062	-7.53815	-6.62696	-14.4626	7.755027	-11.3645	-4.61221
Juana Díaz 063	-9.20896	-6.96212	-8.30481	-2.98228	-12.1242	-3.67994
Juana Díaz 064	-8.37641	-6.58311	-6.63759	-4.55422	-9.76195	-5.11648
Villalba 065	-13.2662	-6.17983	-16.5222	3.649332	-17.1736	-0.80786
Orocovis 066	-11.394	-7.68227	-7.47032	-6.4466	-17.2506	-0.81219
Santa Isabel 067	-7.11568	-4.75128	-3.46966	0.577521	-9.55769	-0.63613
Coamo 068	-13.4222	-11.5917	-13.5413	-5.38914	-17.6138	-8.9667
Aibonito 069	-6.95424	-9.06273	-12.2366	2.757251	-10.6249	-3.93443
Barranquitas 070	-7.80815	-4.65391	-10.4154	4.001006	-13.4921	2.460002
Barranquitas 071	-1.75092	-1.55588	-4.7628	15.13011	-10.7354	8.055533
Corozal 072	-7.33102	-9.57383	4.476635	-14.0239	-12.2286	-8.81951
Naranjito 073	-7.82798	-9.62479	-8.79782	-1.19253	-16.1799	-4.4828
Comerío 074	-10.6808	-10.0529	-8.33997	-7.50673	-13.6736	-6.75065
Coamo 075	-5.57661	-7.23331	-5.64831	-3.42038	-4.79908	-7.1174
Cidra 076	-8.49014	-7.74205	-19.5196	7.980425	-12.9001	-5.92762
Cayey 077	-5.83908	-11.31	-5.67213	-6.33785	-7.45647	-10.606
Salinas 078	-7.45564	-8.87141	-6.36132	-6.1276	-8.04417	-7.65511
Guayama 079	-7.97752	-9.65603	-8.59192	-4.97055	-9.14276	-7.43134
Arroyo 080	-8.85145	-8.33785	-21.6687	0.605524	-11.6183	-8.11106
Aguas Buenas 081	-12.0472	-8.68082	-11.4372	-11.9167	-12.2069	-7.37976
Caguas 082	-6.18242	-10.5154	3.242972	-18.7954	-8.37273	-10.6519
Caguas 083	-6.39676	-8.75483	1.790392	-16.8421	-7.67669	-11.0898
Gurabo 084	-7.57311	-7.57016	-2.89704	-7.81787	-9.03989	-6.42407
Salinas 085	-9.22958	-8.88033	-7.25585	-2.29694	-12.2804	0.257906
San Lorenzo 086	-5.84157	-7.09118	0.885214	-8.70432	-7.03291	-8.39424
San Lorenzo 087	-7.43124	-7.91093	-0.73844	-12.0027	-8.64406	-8.39326
Juncos 088	-7.55685	-7.86194	-2.52256	-8.38733	-7.56585	-7.47752
Las Piedras 089	-8.80146	-7.23597	-4.70603	-9.73965	-10.8722	-6.13368

Las Piedras 090	-5.16699	-7.05082	-2.14232	-7.45233	-9.50599	-6.13727
Patillas 091	-6.24918	-14.6967	-3.55558	-13.0838	-7.14022	-10.0154
Maunabo 092	-5.00427	-4.86907	-1.52533	-5.62695	-5.36405	-4.70014
Yabucoa 093	-8.90817	-6.38662	-9.87785	-1.55815	-10.2782	-3.80034
Humacao 094	-6.13274	-7.45255	0.604877	-9.58827	-9.96678	-5.08897
Naguabo 095	-10.0642	-5.22072	-22.4536	11.08109	-14.0063	1.935189
Vieques 096	-6.58061	-7.57111	1.464451	-11.6859	-9.99076	-5.88155
Culebra 097	-3.53709	-7.00549	8.200549	-10.0962	-10.3297	-8.04258
Ceiba 098	-6.69707	-3.25235	0.768839	-3.81292	-14.4125	3.845934
Fajardo 099	-7.72489	-5.08389	-7.63763	-5.97828	-13.9335	0.848877
Luquillo 100	-9.13469	-8.9719	-4.26768	-10.253	-13.9487	-3.77406
Río Grande 101	-5.74237	-3.3419	-6.54981	0.5683	-7.2157	0.127418
Río Grande 102	-8.67246	-3.81591	-10.9177	2.678764	-12.0233	-1.31148
Loíza 103	-10.5212	-2.25271	-11.2588	4.539907	-11.5051	-0.36944
Canóvanas 104	-7.98414	-6.51927	-4.03167	-5.9645	-10.3101	-6.31859
Canóvanas 105	-9.25031	-5.83085	-6.66261	-4.48727	-10.1633	-7.9904
Carolina 106	-8.36125	-8.72309	-1.24123	-10.9087	-8.02341	-13.4139
Carolina 107	-7.23159	-9.21001	-2.93805	-11.5807	-7.72796	-11.0513
Carolina 108	-6.35108	-8.17529	-4.0664	-8.51171	-8.93743	-9.42322
Trujillo Alto 109	-5.36953	-7.279	4.582253	-11.1914	-7.22632	-9.86924
Trujillo Alto 110	-5.60948	-8.09317	0.076518	-10.4763	-6.3243	-9.66686

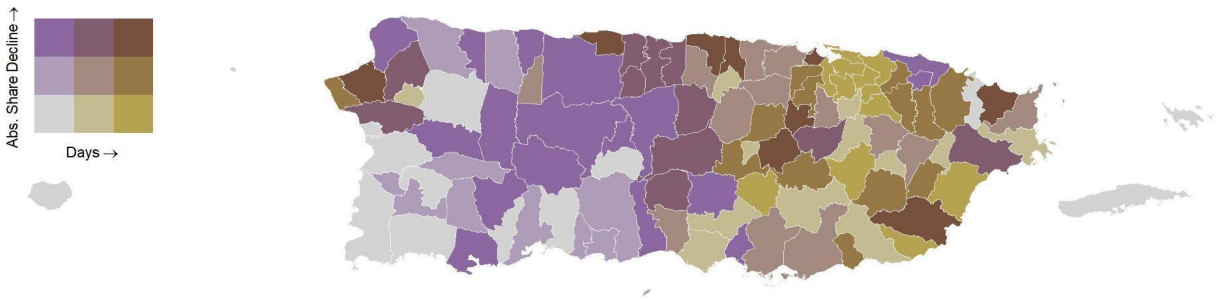

Figure A.1: Bivariate Mapping of Decline in PNP Governor Vote Share with Days Until Sustained pre-Hurricane Maria Luminosity (NTL Restoration).

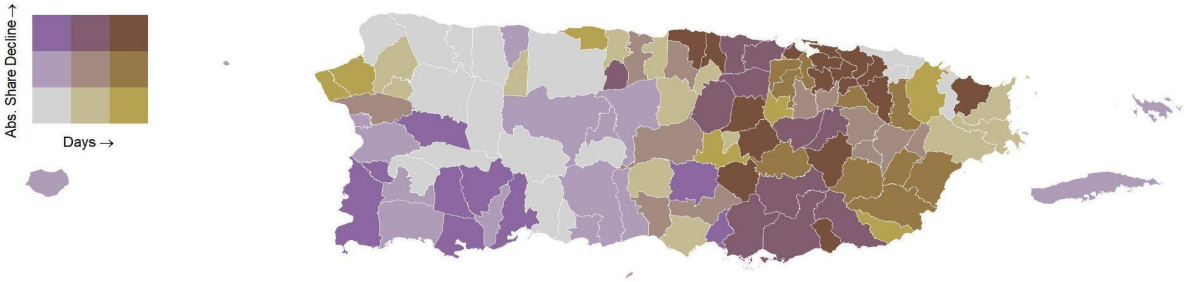

Figure A.2: Bivariate Mapping of Decline in PPD Governor Vote Share with Days Until Sustained pre-Hurricane Maria Luminosity (NTL Restoration).