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Local politics in an international context: a linguistic analysis of community resiliency in Memphis, TN

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ABSTRACT

This paper utilises the framework of state capacity from international relations, including the quality of institutions, bureaucracy, and enforcement mechanisms, to evaluate community resiliency. We take a global perspective on the problems of disorder, crime, and social capital, contextualising these issues with a broader global literature of how communities respond to systemic stressors driven by both endogenous and exogenous factors, including social problems and corresponding policy prescriptions are defined in terms of poverty, inequality, and civic participation. Locally, these issues are framed as individual-level problems, such as crime and blight. Our work provides a bridge between the international relations perspective and the local governance perspective. Using macro-level global political research drawing on international relations scholarship on quality of governance, we examine micro-level processes with Memphis, Tennessee, USA as a case study. Our data include reports from the Memphis 3–1-1 system alongside crime, weather, social capital and governance indicators.

KEYWORDS Governance; computational linguistics; 311; resilience

Resilience and state capacity

All politics is local; drawing on this truism, we apply frameworks from international relations such as state capacity and enforcement mechanisms as well as American politics to a case study of community resilience in Memphis, Tennessee. State capacity encompasses a government’s willingness and ability to provide for the needs of its citizens. It is comprised of three elements: quality of institutions; bureaucratic or administrative oversight; and enforcement capacity. We operationalise resiliency along several dimensions: the overall community well-being, responsiveness of government to community problems, depth of criminal activity, and vertical accountability of local government. We contribute to the study of resiliency by using computational linguistics to capture citizen-generated perspectives on local-level community problems and applying...
international relations (IR) scholarship to the domain of local politics. We examine indicators of humanitarian well-being, disorder, and community violence, and governance in a post-conflict setting. In doing so, we reiterate the adage that ‘all politics is local’, encouraging future dialogues between international relations scholarship and domestic politics (Yannitell Reinhardt and Drennan 2018).

We explore two central questions: under what conditions are people most vulnerable and least resilient; and how does government mitigate the deleterious effects of vulnerability? Communities are most resilient when there are strong social safety nets to protect their health, wellbeing, and security, including strong social networks, access to quality education and healthcare, and responsive government agents (Cutter et al. 2008; Cutter, Burton, and Emrich 2010; Haase and Demiroz 2018). Resiliency encompasses the strength of state resources, support provided by non-state actors, and threats to community resiliency by state and non-state actors. This model is similar to the REDI score generated by measuring elements of social infrastructure and community security, physical infrastructure, economic strength, and environmental conditions (Kontokosta and Malik 2018). In general, communities are most resilient when public goods, including domestic, international, physical, and social security, are equitably provided by the state (Bättig and Bernauer 2009).

We emphasise the role of good governance in shaping social outcomes and improving community resiliency. In political contexts where the state is a strong provider of public goods, non-state actors have less influence (Berman and Laitin 2008), and individuals rely less on private sources of social support. Conversely, where state institutions are weak, non-state actors rise to fill the void, providing citizens with services that strong states otherwise would, including security and social services such as food and employment opportunities (Liesbet and Gary 2003). Non-state actors have fewer incentives – and lack a public mandate – to provide services to everyone in the community; in many cases, they are religious-based organisations with restrictive distributive policies. Rather, private goods (often club goods) are provided to members of specific communities on an individual basis (Berman and Laitin 2008). This arrangement necessarily excludes individuals who are unaffiliated with these groups from the provision of services such as education, security, medical services, and social support. Resiliency, then, is not always a function of government strength, as communities coordinate and subsidise their own vulnerability mitigation. Furthermore, as Achen and Bartels explain, citizens are wont to forego preventative measures in favour of intervention, such as reinforcing infrastructure with both specific and broad benefits (Achen and Bartels 2004).

Ensuring equitable and universal provision of public goods is a function of vertical accountability or citizens’ engagement with the political process through elections (Zaller 1992). Citizens also evaluate government effectiveness
by their responsiveness to requests for issues requiring immediate attention. To evaluate this, we use citizen-generated service tickets, and local government outcomes from a citizen reporting service system (3-1-1), alongside crime and governance indicators to explore variation in government responsiveness (Zobel, Baghersad, and Zhang 2017). The 3-1-1 data provide a unique opportunity to see how communities conceptualise endogenous and exogenous problems, and how government agencies respond to them. We also examine humanitarian issues, including crime and social well-being, to capture dimensions of resilience. Our paper proceeds as follows: we first provide a brief background of the socio-political context in our case study location: Memphis, followed by a discussion of how the international relations framework informs local studies of resiliency. We then turn to the empirical analysis of local governance and resilience using responses from the 3-1-1 system, crime reports, and social/humanitarian indicators. While Memphis, faces myriad bureaucratic, enforcement, and institutional quality issues, we are encouraged to find that the level of service is not contingent on geography, but rather by the level of voter involvement. Response times to 3-1-1 service requests to all areas of Memphis are roughly equal, indicating equitable distribution of services and good governance along this measure.

**Case study: Memphis, Tennessee, U.S.A**

The American South is similar in many ways to the locations studied by international relations scholars in that it occupies a post-conflict historical space where vestiges of inequitable social orders continue to exert influence over contemporary problems. While the post-Civil War Reconstruction Era aimed to rebuild damaged physical and cultural infrastructure in the South, social, civil, and political reintegration were abandoned prematurely, enabling decades of fragmentation and dysfunction. In many ways, the South has never recovered from the Civil War, and contemporary Memphis provides insight into these shortcomings as well as opportunities for growth. By exploring social capital, disorder, and crime, we seek to explain why governance fundamentally matters to development outcomes.

Memphis has a complex socio-political past and present, where the problems of generational poverty, crime, racial tensions, and disparate economic opportunity with origins in the transatlantic slave trade and American Civil War still lack resolution. This city serves as an ideal case to examine how issues of institutional quality, bureaucratic and administrative responsiveness, and enforcement capacity have produced sub-optimal outcomes for the community. To illustrate this, Figure 1 shows differences by postcode in two areas that align with the Human Development Index (Herrero, Martínez, and Villar 2018): vacancy rate of residence structures, and per cent of citizens in poverty. From this figure we observe the
following patterns by postcode: in some areas, poverty is virtually non-existent whereas, in others, nearly two-thirds of people live in poverty, and some areas have fewer than 5% of structures vacant whereas, in others, nearly one in four are vacant. Thus, in terms of human development, some areas of Memphis are very resilient, while others are quite fragile (Cutter 2016; Cutter, Burton, and Emrich 2010).

**Politics and public goods in the American South**

Resiliency is a function of the adequate provision of public goods to a community, funded by public funds raised through taxation (Bättig and Bernauer 2009; Krueger, Winkler, and Schumann 2018). This includes prevention services such as maintenance of bridges, roads, and levees, as well as interventions such as emergency services and responses to service requests for non-urgent problems like potholes (Ostrom 1973, 1976), vacant or blighted houses, and overgrown lots (Schwester, Carrizales, and Holzer 2009). Resiliency – as well as vulnerability – is also a measure of the overall well-being of a community, indicated by poverty rates, health indicators, social capital, and political engagement. Public goods provision often faces challenges, as the American South has widely rejected forms of collective benefits such as outlawing unions through ‘right to work’ legislation, to not collecting state income tax in Tennessee. The under-provision of public goods.
goods, through lack of dedicated funding streams, positions citizens to find other means for meeting their needs through private means.

In the South, public problems such as crime, disorder, and social issues often incur private solutions for citizens with high socio-economic status (SES) who supplement police services with private security firms. Citizens themselves are largely responsible for the upkeep of quasi-public spaces, e.g., repaving broken sidewalks in front of their homes. Private and parochial schools that emerged post-Brown vs. Board of Education continue to serve as an alternative to public education (Hirschman 1970). While the city and country public schools recently merged, segregation remains a problem (Kiel 2010). Lower-SES citizens also rely on private solutions, but of a different origin: community security may be provided by informally organised citizen groups with gaps in the provision of social services, such as employment, food, clothing, shelter, and child care, often filled by religious and/or charitable organisations.

Memphis is emblematic of the traditionalist Elazarian perspective that participating in government is a privileged endeavour, and is meant to facilitate business deals, maintain existing social structures, and facilitate the provision of private goods to a few people (Elazar 1972; Nardulli 1990). The longitudinal context for these changes merits discussion, however, as the political culture of the American South has historically maintained weak support for public goods, prioritising private solutions to problems of crime and disorder (Drennan and Morrisey 2018). Elazar asserted that three political cultures dominate American politics: moralist, individualist, and traditionalist, and that these cultures exhibit regional variation. As he notes, American political cultures differ in their views of what constitutes good governance, largely in normative terms. In other words, what is government supposed to do, who is supposed to participate both in holding office and in selecting and voting for candidates, and how is the ‘art’ of governance practised?

Broadly speaking, the traditionalist culture describes perceptions of politics in Memphis: prestige, status, and social connections matter; and clientelism, cronyism, and lengthy, unchallenged and often dynastic tenures in office have dominated the political space, reminiscent of the non-democratic regime typologies identified by international relations and comparativist scholars (Chyzh 2014; Geddes, Wright, and Frantz 2014; Lai and Slater 2006; Linnerooth-Bayer, Mechler, and Pflug 2005; Linz 2000; Weeks 2012). While some challenge Elazar’s foundations of political culture at the individual level (Hero and Tolbert 1996; Nardulli 1990), on aggregate the culture-based variations in public perceptions of government have persevered, even solidifying alongside the recent increase in party polarisation (Goidel et al. 2018; Martin and Yurukoglu 2017).

Disparate paths of resiliency in Memphis are maintained in large part through a status quo political system, although recent elections have proven
a departure from this path. Broadly speaking, voting continues to be the primary means for citizens to register their approval or disapproval of the status quo, on issues as well as candidates (Zaller 1992). Yet voting, and trust in government, has a fraught history throughout the South, and specifically in Memphis. Moreover, voting rates have steadily declined for decades, as shown in Figure 2 (1968–2016). Since the end of the American Civil War and Reconstruction Era, voting rights remained tenuous in the South. Just weeks after the murder of three civil rights workers in Philadelphia, Mississippi, the 1964 Civil Rights Act was passed, banning discrimination on the basis of race, colour, sex, religion, or national origin. Set against the backdrop of the traditionalist political culture where politics benefits the elite, this regional legacy of systemic inequality continues to foster mistrust in local government that manifests in low voter turnout rates (Andrews 2004; McAdam 1986).

### Institutional quality

The decades-long tenure of former Mayor Willie Herenton (1991–2009) ended with the elections of A C Wharton (in 2009) and Jim Strickland (in 2016), invigorating local politics. Substantial political transitions occurred in both the Shelby County Mayor’s Office and the City of Memphis Mayor’s Office. Memphis political lineage resembles that of machine politics, where the machine is a ‘non-ideological organization interested less in political principle than in securing and holding office for its leaders and distributing income for those who run it and work for it…likened to a business in which

![Figure 2. Decline in voter turnout in Shelby County (Memphis), TN (1968–2017).](image-url)
all members are stockholders and dividends are paid in accordance with what has been invested (Scott 1969). Yet with more regular leadership turnover, issues of patronage, cronyism, nepotism, and preferential treatment begin to resolve, yielding to more fair competitions for government positions and increased transparency (De Mesquita et al. 2002; Keefer 2007).

In the international system, weak states, including post-conflict states and those with non-democratic leadership, often suffer from lack of institutional legitimacy due to economic and political corruption, pervasive and entrenched social, and economic inequality. The concept of governance refers to the relative democratic-ness and representativeness of a political system. As Cheibub, Gandhi, and Vreeland point out, a democratic system is defined by ex-ante uncertainty, ex-post irreversibility, and repeatability (Boix 2001; Cheibub, Gandhi, and Vreeland 2010; Przeworski et al. 2000). In other words, the winner of an election should not be a foregone conclusion, the election results cannot be reversed, and the democratic electoral process must be repeatable at regular intervals. Traditionalist and party systems, especially in the South, often have familial legacy leaders, amplifying incumbency effects via name recognition, and perpetuating uncompetitive and less-than-democratic election processes and outcomes.

The related concept of political capacity defines how governance is measured and reflects the willingness and ability of the government to respond to socio-political needs. Willingness refers to a state’s political will, i.e., whence leaders derive their power. Leaders with a small group of supporters, often found in non-democratic systems, derive their power from providing private benefits to their inner circle and as such lack political will to distribute public goods to the broadest swaths of potential voters (Mesquita et al. 2003). On the other hand, leaders in a more democratic system derive their legitimacy from widely distributing public goods, increasing their willingness to expend public resources for the broader societal benefit. A state’s ability – its capacity – to provide these goods is a function of its infrastructure. Hendrix identifies three key areas of capacity which characterise governments’ institutional responsiveness that provide the backbone of our analysis of resiliency and governance in Memphis, TN: enforcement capacity by police or military; bureaucratic and administrative capacity, such as the adherence to the rule of law (e.g., regular, free, and fair electoral competitions with leadership turnover and outcome uncertainty; the ability to raise revenue through taxation); and the quality of political institutions (e.g., without deference to cronyism, nepotism, or politics of personality) (Hendrix 2010).

In the international context, governance problems are framed as systemic state failure that neglects the needs of its citizens, reflecting a perspective that situates blame with state institutions (King and Zeng 2001). On the other hand, at the domestic and local level, these problems are often framed as citizens failing to participate within acceptable, formal social and political
parameters and flouting the expectations of the social contract with legitimate state apparatus (Newman 2007; Rousseau 1990). Weak governance in the international system is often found in pre-industrial and post-conflict settings with correlates of under-development such as poverty and violence. Hendrix identifies the quality of institutions as a pillar of state capacity, indicating the state’s willingness to provide public goods (Hendrix 2010). Selectorate theory posits that in democratic systems, the base of support is broad so leaders gain and retain power through redistribution of resources, providing public goods to citizens; in non-democratic systems, leaders remain in power by providing private benefits to a small constituency, often leading to long tenures in office (Mesquita et al. 2003).

Given the context of decreasing voter turnout and mistrust in Memphis, we may expect varying degrees of civic engagement in formal venues, like voting, and in less formal venues, like participation in government programs designed to improve communities. The fundamental question that informs citizens’ engagement with government agencies is, does government benefit me? With more frequent leadership turnover in local politics replacing the dynastic tenure of previous eras, leaders have greater incentive to distribute public goods and benefits to a broader constituency as electoral competition increases. Our empirical analysis captures a yearlong snapshot of service requests through the 3-1-1 system in 2016. As such we are unable to represent the construct of governance quality longitudinally beyond the descriptive details that indicate that the quality of institutions in Memphis is improving with more regular leadership turnover and greater electoral competitiveness. We instead operationalise this concept empirically as the number of active voters in Memphis, by postcode.

**Bureaucracy capacity**

Bureaucratic or administrative capacity reflects the state’s ability to respond to public concerns. Leaders face choices about where best to allocate finite resources to maximise the return on this investment and claim credit for policy successes. Leaders make decisions about the allocation of public resources depending on the demands and accountability they face from their supporters, i.e., the number of active voters, including investing in the infrastructure to address public concerns such as those made through the 3-1-1 service. Vertical accountability ensures that leaders are responsive to citizens’ preferences, lest they be removed from office for poor policy performance (Geddes and Zaller 1989; Zaller 1992). In the context of our research, government responsiveness to socio-political problems has varying yields for politicians. Preventive policies such as repaving roads, fixing levees, and vector control are low-reward projects as they provide broadly distributed benefits, whereas interventive policies such as removal of
rubbish and power outage restoration should yield high rewards as they provide more specific, personalised benefits. For voters, intervention engenders more direct support for politicians than does prevention (A. Healy and Malhotra 2009). Ironically, voters often blame politicians for problems and inconveniences beyond the scope of their control, like shark attacks, droughts, and influenza outbreaks (Achen and Bartels 2004). Approval for public spending decreases when the age and race of those benefiting differ from those voting (Harris, Evans, and Schwab 2001; Luttmer 2001; Poterba, Venti, and Wise 1996). Voters do not generally support spending money on people outside of their demographic, or for prevention rather than intervention or compensation (Achen and Bartels 2004).

**Hypothesis 1. Greater levels of institutional quality improve bureaucratic capacity.**

**Enforcement**

Enforcement capacity is the third leg of the state capacity tripod; it is the ability for state agents to provide security and maintain law and order, including the military and police. Much of the concern related to lack of good governance focuses on violence and crime – an indicator of social disorder. The relationship between the state and non-state actors generally focuses on challenges to legitimate state authority posed by non-state actors, and support for vulnerable communities by non-state actors when the state fails to provide such benefits. Extra-legal criminal activity challenges the authority of the state inasmuch as it taxes the state’s enforcement capacity and reflects systemic disorder and dysfunction.

Enforcement problems at the local level are often confounded with a disorder. ‘Broken windows’ theory posits that smaller-order crime, such as blight, rubbish, vandalism, petty violations, and misdemeanours (Zimbardo 1969) create an atmosphere that fosters higher-order law-breaking, such as burglary, assault, and murder (Kelling and Coles 1998). The broken windows approach frames disorder as a crime problem, rather than a problem related to the under-provision of public goods or larger socio-economic factors. They assert that addressing low-level patterns of crime and social problems creates an atmosphere incompatible with higher-level offences. Broken windows theory describes the decline of social capital and the interruption of social networks (Wilson and Kelling 1982), and it led to invasive and controversial policing practices such as ‘stop and frisk’ strategy pioneered in New York City, later found unconstitutional and racially biased (Goldstein 2013).
In recent years, Memphis City’s enforcement capacity increased with the advent of the Real Time Crime Center and a new predictive policing model called Blue Crush (Tulumello 2016; Vlahos 2012). While Memphis policymakers discussed implementing this policy in 2016 under different nomenclatures (‘detain and search’), the idea has since been shelved (Dries, n.d.). We model enforcement issues empirically as violent, non-violent, and other types of crime, classified by postcode.

The critical issue with implementing the broken windows approach advocated by Kelling et al. is that their theory omits the crucial middle link: the exogenous shock. One such pattern is the disruption of a historically stable area in Memphis supported by a strong African-American middle class. In 1937, Firestone took ownership of a tire factory in North Memphis, employing and sustaining thousands of individuals and households. In the early 1980s, the Firestone plant – as well as the International Harvester tractor plant – closed. The socio-economic consequences were swift: previously thriving neighbourhoods disintegrated. Another such pattern emerged in the early 2000s with the demolition of public housing, redemption of housing vouchers, and patterns of criminal activity (Rosin 2008). Similarly, the 2008 financial crisis devastated the Memphis housing economy, increasing the numbers of foreclosures and housing vacancy, and eviscerating decades of wealth accumulation by black Memphians (Powell 2010).

Neighbourhoods do not spontaneously disintegrate. Rather, exogenous shocks that pre-empt socio-political problems extend from government and industry decisions to change the status quo. Importantly, business and government decisions disrupt social capital and fragment vulnerable communities that rely on informal social networks to compensate for under-provision of public goods. Resilient communities should have lower rates of vacancies. In our empirical model, we capture this phenomenon by measuring the rate of housing vacancies as well as the duration of utility service provision by the public utility company, Memphis Light Gas and Water (MLGW) that serves as a measure of neighbourhood stability and social capital.

Debate exists whether crime and disorder are separate processes or whether they are extensions of the same process (Gau, Corsaro, and Brunson 2014; Keuschnigg and Wolbring 2015). Labelling disorder often depends on which government entity is responsible for dealing with the consequences, i.e., whether the offence falls under the purview of enforcement, bureaucracy or administrative, or the rule of law. We operationalise enforcement capacity with the number of violent crimes reported in Memphis City. Evidence from the 3-1-1 reporting system is one way to disentangle crime and disorder. Gatens investigates the relationship between service request calls in St. Louis, and violent crime, finding that in areas with increased service calls, there is an associated increase in the rate of violent crime (Gatens 2016). This relationship may be spurious, however; given
the conceptual framework we have presented here, areas with increased rates of 3-1-1 service calls may not necessarily have more social disorder. Rather, more 3-1-1 requests may indicate the opposite: that the locality demonstrates increased trust in government and its responsiveness to their concerns. Communities with more disorder may in fact trust government less to address their concerns or have informational gaps that inhibit their knowledge of such resources, also reflecting the effectiveness of governance. The more pernicious interpretation of this line of reasoning is that government may, in fact, be less responsive to areas with more disorder and more crime, although in our empirical analysis we find no evidence of this in Memphis.

Hypothesis 2. Where institutional quality and bureaucratic capacity are weak, enforcement problems are greater.

Indicators of resilience

The state’s bureaucratic capacity encompasses government policy and responses to social needs. For states in the international system, Taydas and Peksen find that for those spending more on social programs, i.e., providing public goods that build social resilience, the incidence of violence decreases (Taydas and Peksen 2012). When governments allocate resources for social services that improve resilience and reduce vulnerability, social conditions – importantly, a decrease in violence – improve. Further, this generates social expectations of government responsiveness that citizens can ratify and reinforce through voting in elections for candidates that promise to deliver public goods, which incrementally changes the political culture. Scholarship on best practices in international development and violence reduction lends little support to the idea that cosmetic interventions (e.g., those suggested in the broken windows literature) would lead to a significant improvement in public policy outcomes. To the contrary, most literature focuses on direct interventions with citizens such as improved access to healthcare and employment. In other words, international relations scholarship emphasises human-centric policy interventions (Taydas and Peksen 2012). On a domestic level, humanitarian indicators such as healthy diet, access to health insurance, poverty rate, and annual income can provide insight into the resiliency or vulnerability of communities.

Exogenous shocks often precipitate policy interventions, such as inclement weather (Brancati 2007; Goidel et al. 2018). As we identify in our linguistic analysis of the 3-1-1 requests, many community-level problems are related to weather, such as fallen branches, overgrown lots, and potholes (Seo 2018). Weather is also correlated with another social problem: crime. Anderson, Bushman, and Groom (1997) found that hotter weather increased crime rates, controlling for social, demographic, and economic
variables (Anderson 1989). A substantial body of literature has further examined the relationship between weather, climate change, and violent behaviour (Butke and Sheridan 2010; Cohn 1990; A. J. Healy, Malhotra, and Mo 2010; A. Healy and Malhotra 2009; Horrocks and Menclova 2011; Malhotra and Kuo 2008; Ranson 2014). In our empirical models, we control for indicators of disorder such as temperature and precipitation, as well as types of crime. We operationalise bureaucratic capacity here as the length of time required to complete a service request through the 3-1-1 service.

We operationalise resiliency with the per cent of vacant parcels by postcode. In our dataset, this variable is strongly correlated with the others mentioned such as poverty, income, and per cent with health insurance. More vacancies also mean less tax revenue, and are associated with other indicators such as crime, blight, and poverty. Table 1 shows the variables used in our empirical analysis. With vacancy as our dependent variable, we generate a comprehensive model of resiliency, institutional quality, bureaucratic responsiveness, and enforcement as shown in Figure 4.

To test the broken windows framework and neighbourhood resiliency – a function of government responsiveness – we generate the following hypothesis:

**Hypothesis 3:** Resilient neighbourhoods will have more responsiveness from local government.

**Data**

We now turn to the empirical measurement of governance and resilience in Memphis, TN. We aggregated data from several sources as a part of our Smart City Memphis project with the FedEx Institute of Technology and the City of Memphis, including the US Census, Shelby County Elections, Memphis Police Department, the National Weather Service, and the 3-1-1 system. The 3-1-1 system affords citizens the opportunity to connect with appropriate government agencies via phone or Internet and register immediate complaints about community problems, seeing the resolution
through e-government systems (Meijer and Bekkers 2015). This provides a channel for citizen feedback and a tangible measure of government efficiency and effectiveness, operationalising Hendrix’s concept of bureaucratic and administrative capacity (Hendrix 2010).

**Method**

We utilised an empirical analysis of response times from 3-1-1 service requests to evaluate government responsiveness. We define *Duration* as the length of time from when a service ticket is opened, to when it is closed, i.e., when the problem has been resolved. We also measure social capital as the average length of time utilities have been provided, separating by postcode. We estimate our ticket duration using the Cox Proportional Hazards model and limit the service request period to one year (Box-Steffensmeier and Zorn 2001). Examining Kaplan–Meier curves for various departments revealed that tickets submitted to different departments have substantively different survival curves (see Table 1, online appendix). The two departments that address their tickets most rapidly are Environmental Maintenance (sewage) and Solid Waste Management (garbage pickup). Indeed, Environmental Maintenance resolves the majority of their tickets on the day they are received. Code Enforcement (building permits, illegally parked vehicles, junk or weeds in the yard, etc.) had the slowest average ticket closure.

Trying to include department as a covariate in our duration model violated the proportional hazards assumption and so we decided to include department as a stratum in our Cox model, meaning different departments have different baseline hazards but that the effects of the other covariates (postcode and MLGW service) are assumed constant across departments.

**Results & discussion**

Our key findings from the duration analysis are as follows: response times across departments are comparable; phone service requests are answered the quickest; and length of time at the residence – a proxy for social capital – does not affect response time. We are encouraged that areas vulnerable to social disruption receive comparable service times. In other words, the local government does not systematically favour more established neighbourhoods in terms of responsiveness. Two issues may account for the imbalance in phone vs. Internet reporting. First, the majority of community outreach for the 3-1-1 service encourages citizens to report service requests by phone, not the Internet. Second, a substantial digital divide exists in Memphis between citizens with and without reliable, quick Internet access, especially in the most vulnerable areas we have identified. This disparity could also reflect or produce procedural differences within the
3-1-1-response paradigm that accounts for the difference in time to resolution, independent of request seriousness.

Figure 3 shows the density of 3-1-1 calls by postcode in Memphis, while Figure 4 shows the types of 3-1-1 service requests generated in Memphis in 2016. We use Latent Dirichlet Allocation, or topic modelling, to derive these categories (Blei, Ng, and Jordan 2003). The topic of ‘weeds/grass’ appears duplicative, yet each individual topic relates to a different set of parcels, or smaller geographic regions, within Memphis. Some postcodes have predominantly one complaint, as in 38014 (replacing recycling carts), 38132 and 38113 (potholes), and 38101 (weeds/grass). Most postcodes, however, have relatively balanced categories of requests like missed rubbish pickup, dead animals, mould, tree debris, and vacant houses. The 3-1-1 topic model provides nuance and insight into the types of issues facing citizens in Memphis, as well as their relative geographic distribution. It is important to note that some of these issues have more complex remedies than others: for example, rehabilitating mould-affected structures and filling potholes are more labour-intensive than assigning violations to residences with picker piles, overgrown yards, or inoperable vehicles on-site. Similarly, addressing missed rubbish pickups or replacing broken recycling carts is simpler than clearing tree debris from storms, a salient issue in the dense, verdant, and old-growth forest areas common throughout urban Memphis.

To test Hypothesis 1, our dependent is the length of time at residence (Duration), and the independent variables are the total number of voters, controlling for social capital and total population. We find that the total number of active voters is associated with better bureaucratic capacity, as is increased social capital (see Table 2). For Hypothesis 2, we estimate two models using as dependent variables the numbers of violent and

Figure 3. Density of 3-1-1 calls by postcode in Memphis.
non-violent crimes. The independent variables are the percentage of voters by postcode, and duration (see Table 3). We find that voting has no effect on violent crime rates and a positive effect on non-violent crime rates. This suggests an endogeneity problem, due to the fact that non-violent crimes are predominantly property crimes and take place where voters reside (see Figure 4). We also control for average income, finding an inverse relationship between income and crime. To test Hypothesis 3, Figure 4. Topics by postcode from 3-1-1 service requests.

Table 2. Hypothesis 1 – institutional quality and bureaucratic capacity.

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<th>Std.Err.</th>
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<td>−146.641</td>
<td>13.010</td>
<td>0.000</td>
</tr>
<tr>
<td>cons</td>
<td>408.185</td>
<td>25.969</td>
<td>0.000</td>
</tr>
</tbody>
</table>
we examine resiliency using vacant housing rates per postcode, finding that the longer resident tenure is associated with more vacant housing, as are increased rates of violent and non-violent crime. From this, we infer that housing longevity does not necessarily offer protection against vulnerability. This finding stands in contrast to the ‘broken windows’ hypothesis that established neighbourhoods have more social capital to guard against these types of vulnerabilities.

Table 3. Hypothesis 2 – enforcement.

<table>
<thead>
<tr>
<th>Coeff. Std.Err.</th>
<th>Violent</th>
<th>Nonviolent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Voters Percent</td>
<td>$-2.4 \times 10^{-5}$</td>
<td>$1.4 \times 10^{-5}$</td>
</tr>
<tr>
<td>Duration</td>
<td>$-8.1 \times 10^{-5}$</td>
<td>$4.4 \times 10^{-5}$</td>
</tr>
<tr>
<td>MLGW</td>
<td>$-4.1 \times 10^{-6}$</td>
<td>$1.2 \times 10^{-5}$</td>
</tr>
<tr>
<td>Average Income</td>
<td>$-1.4 \times 10^{-5}$</td>
<td>$4.0 \times 10^{-6}$</td>
</tr>
<tr>
<td>January</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>February</td>
<td>$-0.164$</td>
<td>$0.085$</td>
</tr>
<tr>
<td>March</td>
<td>$-0.149^*$</td>
<td>0.063</td>
</tr>
<tr>
<td>April</td>
<td>$-0.153^*$</td>
<td>0.061</td>
</tr>
<tr>
<td>May</td>
<td>$-0.033$</td>
<td>0.082</td>
</tr>
<tr>
<td>June</td>
<td>$-0.003$</td>
<td>0.080</td>
</tr>
<tr>
<td>July</td>
<td>$-0.093$</td>
<td>0.063</td>
</tr>
<tr>
<td>August</td>
<td>$-0.070$</td>
<td>0.056</td>
</tr>
<tr>
<td>September</td>
<td>$-0.055$</td>
<td>0.066</td>
</tr>
<tr>
<td>October</td>
<td>$-0.031$</td>
<td>0.096</td>
</tr>
<tr>
<td>November</td>
<td>$-0.172$</td>
<td>0.103</td>
</tr>
<tr>
<td>Constant</td>
<td>$-1.408$***</td>
<td>0.340</td>
</tr>
</tbody>
</table>

$N = 7,673; * p < 0.05, ** p < 0.01, *** p < 0.001.$

Table 4. Hypothesis 3 – Vacancy Rates (Stable Neighbourhoods).

<table>
<thead>
<tr>
<th>Coefficient Std. Err.</th>
<th>Total Active Voters</th>
<th>Duration</th>
<th>MLGW on</th>
<th>Total Population</th>
<th>Precipitation</th>
<th>Max Temp</th>
<th>Violent Crimes</th>
<th>Nonviolent Crimes</th>
</tr>
</thead>
<tbody>
<tr>
<td>$-0.0000511$</td>
<td>0.0001698</td>
<td>$0.0006898$</td>
<td>0.0004066</td>
<td>$0.000244^*$</td>
<td>0.0001124</td>
<td>$0.0001442$</td>
<td>0.0000912</td>
<td>$0.0065931$</td>
</tr>
<tr>
<td>$-0.7584202^*$</td>
<td>0.2933337</td>
<td>$0.5617284$</td>
<td>0.3173981</td>
<td>$0.1584763$</td>
<td>0.211721</td>
<td>$-0.3510279$</td>
<td>0.2744483</td>
<td>$-0.2525129$</td>
</tr>
<tr>
<td>$-0.2356349$</td>
<td>0.2709083</td>
<td>$14.43969***$</td>
<td>2.849447</td>
<td>$-0.2356349$</td>
<td>0.2709083</td>
<td>$14.43969***$</td>
<td>2.849447</td>
<td></td>
</tr>
</tbody>
</table>

$N = 7,006; * p < 0.05, ** p < 0.01, *** p < 0.001.$
Conclusions

We are encouraged by our findings that demonstrate that geography is not destiny in Memphis. Furthermore, voter engagement is a consistently reliable factor in improving the quality of life, provision of services, and institutional support for the community. Evidence from the 3-1-1 data shows that while postcodes within Memphis face different challenges, from vacancy to recycling to overgrown lots, response times and resolutions are not influenced by geographic location. Improvements in institutional quality and bureaucratic capacity can foster social and humanitarian development, alongside gains in the provision of public goods when voters turn out in greater numbers. An influx of citizens from outside the South has also updated expectations of the role of government more broadly, alongside redefining what ‘good governance’ means. As elected positions become professionalised, and as the electoral process becomes more competitive, the provision of public goods and services should improve.

Furthermore, Memphis has undergone multiple positive transformations across several substantive areas: environmental sustainability measures such as farmers’ markets and community gardens to combat prevalent food deserts, bike lanes and bike paths connecting diverse neighbourhoods, and a reassessment of city and county policies through the Sustainable Shelby program initiated in 2009 (Cutter et al. 2008). Neighbourhoods like Binghampton and Broad Avenue (postcode 38112), Downtown (postcode 38103), and Soulsville (postcode 38106) have undergone a mix of redevelopment as well as its companion, gentrification. While Memphis neighbourhoods have salient geographic boundaries and identities, and social capital is strong throughout the city, some networks have experienced substantial disruptions with their associated deleterious consequences (Rosin 2008). Increased voter engagement ought to persuade civic leaders to expand the provision of public goods, ultimately benefiting more citizens. In future analyses, we hope to examine more fine-grained data at the census tract level to capture more variation within neighbourhoods and understand these phenomena at a more nuanced level.

Notes

1. However, citizens use this service at disparate rates (see online appendix).
2. Using a Cox proportional hazards duration model, we estimated time to completion (see Figure 5) for 3-1-1 ticket time to completion.
Disclosure statement

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References


