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Democracy and infant mortality within India: from whether to why

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How does democratic politics affect infant mortality? The bulk of existing research has debated whether democracies have lower levels of infant mortality than non-democracies. Yet, infant mortality varies as much within countries as it does between countries, suggesting that the political processes affecting infant mortality operate at the subnational level. To shed new light on the debate, this paper examines how three core democratic attributes affect infant mortality within a single democracy: India. I argue that higher levels of political representation, citizens' participation, and electoral competition provide political incentives for elected representatives to reduce infant mortality. The theory is tested on a times-series data set from 15 major Indian states between 1980 and 2011. Overall, the results demonstrate the significance of democratic politics, particularly political representation, in influencing infant mortality.

Keywords: India; democracy; human welfare; infant mortality

Introduction

Infant mortality varies nearly as much within India as it does across the entire globe. For instance, in 2011 the infant mortality rate in India's capital city Delhi was 28 deaths/1000 live births, comparable with developing countries such as Guatemala and Dominican Republic.[1] Infant mortality more than doubles in the state of Madhya Pradesh, where infant mortality was 59 in 2011, comparable with low-income countries such as Haiti and Liberia.[2] On the Southern tip of India, Kerala has an infant mortality rate of 12, which is comparable with infant mortality rates in the developed world.[3] The presence of such extreme variation within a single country demonstrates the importance of understanding the subnational determinants of infant mortality.

Yet, the bulk of the existing political science literature primarily focuses on national-level conditions such as regime type. At the heart of the literature is the idea

[1] Guatemala and Dominican Republic had infant mortality rates of 28 and 25, respectively in 2011 (World Bank, 2015).

[2] Haiti and Liberia had infant mortality rates of 57 and 58, respectively in 2011 (World Bank, 2015).

[3] The average rate of infant mortality among the OECD countries between 1960 and 2011 was ~12 (World Bank, 2015).

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that democracies outperform non-democracies (Moon and Dixon, 1985; Przeworski *et al.*, 2000; Zweifel and Navia, 2000; Lake and Baum, 2001; Bueno de Mesquita *et al.*, 2003; Besley and Kudamatsu, 2006; Wigley and Akkoyunlu-Wigley, 2011; Gerring *et al.*, 2012, among others). However, contradictory scholarship questions if there is any relationship between regime type and infant mortality at all (Ross, 2006). This paper offers a different perspective that not only sheds light on cross-national and within-regime variations in infant mortality but also accounts for subnational variations within a single democracy – India. I argue that variations in three core democratic attributes, political representation, citizens' participation, and electoral competition motivate political representatives to reduce infant mortality.

Several prominent scholars such as Dahl (1971), Verba *et al.* (1995), Manin *et al.* (1999), and Lijphart (2012), among others, emphasize the significance of these democratic attributes. Manin *et al.* (1999: 4) stress the significance of representation as they note '… a central claim of democratic theory is that democracy systematically causes governments to be representative'. Verba *et al.* (1995: 1) refer to citizens' participation as 'the heart of democracy'. Dahl's (1971) polyarchy emphasizes attributes of both representation and participation. Lastly, presence of free and fair elections is yet another important feature of democracy (Dahl, 1971), where electoral competition ensures responsiveness of elected officials. Overall, there is little disagreement among scholars about the significance of these three democratic attributes.

This paper makes two primary contributions to existing research. First, the concept of democracy is disaggregated into three core democratic attributes to more precisely specify the link between democracy and infant mortality. This enables us to understand *why* democracies perform better than non-democracies. As the three democratic attributes are prevalent to a larger degree among democracies as compared with non-democracies, the paper also speaks to the larger debate in the existing literature about *whether* democracies perform better than non-democracies. Second, the paper identifies the determinants of infant mortality that vary at both the national and subnational level, thereby shedding new light on the controversy over the role of democracy at the national level as well as providing a subnational theory on the politics of infant mortality within democracies.

The implications of this research stretch beyond the domain of infant mortality to address how democracy affects the plight of the poor in particular and human welfare in general. Infant mortality is particularly prevalent among the poorest sections of society and also reflects basic living conditions of the poor such as poverty, housing quality, resistance to diseases, sanitation, air quality, availability of clean water, accessibility to neonatal, and prenatal health service, among others (Victora *et al.*, 2003) for which cross-national time-series data as well as subnational time-series date are not widely available.

Moreover, infant mortality has been used as an indicator of human well-being by several prominent cross-national studies (Moon and Dixon, 1985; Przeworski *et al.*, 2000; Lake and Baum, 2001; Gerring *et al.*, 2005, 2009, 2012; Ross, 2006, among others).

I employ a time-series data set from 15 major Indian states between 1980 and 2011 to assess how the core features of democracy affect infant mortality. Democratic attributes of representation, participation, and competition are measured with the effective number of parties (ENP), voter turnout, and the electoral margin of victory, respectively. Overall, the results demonstrate the significance of democratic politics, particularly political representation, in influencing infant mortality.

The Indian case

India presents a particularly useful case to analyze the relationship between democratic attributes and infant mortality for two primary reasons. First, the vast variation in infant mortality among Indian states is suggestive that subnational politics plays an important role in India. Second, a subnational research design provides methodological leverage by holding constant prominent national-level determinants of infant mortality.

Indian states present comparable patterns of variation in infant mortality as observed cross-nationally and among democracies and non-democracies alike. Figure 1 displays the dispersion of infant mortality rates through box-plots from 1980 to 2011 across four groups: global sample of countries, democracies, non-democracies, and Indian states.[4] The *x*-axis identifies these four groups and the *y*-axis shows the variation in infant mortality rates.[5] What is particularly interesting is that the variation in infant mortality among Indian states is comparable with the variation among all democracies at the national level.[6] Thus, understanding the subnational variation in infant mortality at the state level is imperative.[7]

A subnational study on India also offers an important methodological advantage by providing relatively greater comparability between cases such as common historical, cultural, and socio-economic characteristics, which enhances our ability to make valid inferences (Snyder, 2001; Gerring, 2004). Despite differences among Indian states, a subnational study provides a better control for measurable and

[4] I use the 'polity2' variable from the Polity IV data set to differentiate between democracies and non-democracies (Marshall and Jaggers, 2012). The 'polity2' variable is a measure of democracy based on the competitiveness of executive recruitment, openness of executive recruitment, constraints on chief executive, and competitiveness of political participation. The variable ranges from −10 to +10 where higher values indicate higher levels of democracy. All countries with a polity2 score of ≥6 are classified as democracies and countries with a polity2 score of <6 are classified as non-democracies. The box-plot capturing variation in infant mortality within India includes data on 15 major Indian states.

[5] Country-level infant mortality data come from World Development Indicators (World Bank, 2015). The Data and methods section mentions the source of infant mortality data for Indian states.

[6] The non-democratic sample box-plot also displays considerable variation in infant mortality, thereby reiterating the point that a within-regime focus is important. However, as the paper primarily relates to democratic regimes, the discussion is restricted to democracies only.

[7] This is especially relevant in light of the fact that state governments are primarily responsible for providing welfare goods and services in a federal system such as India (Sáez and Sinha, 2009). Moreover, survey evidence from India also indicates that citizens hold state governments responsible for the provision of public goods and services than local or national governments (Chhibber *et al.*, 2004).

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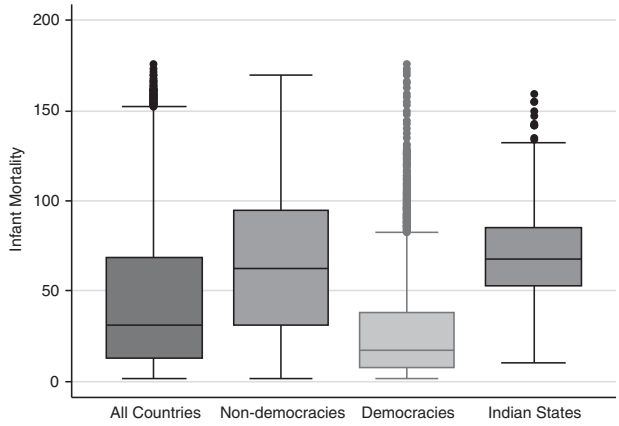

Figure 1 The distribution of infant mortality: globally, non-democracies, democracies, and Indian states, 1980–2011.

immeasurable factors as compared with a cross-national study. In particular, this subnational research design allows one to hold constant two primary cross-national determinants of infant mortality – regime type and political institutions. The literature emphasizing regime type argues that democracies perform better than non-democracies (Przeworski *et al.*, 2000; Lake and Baum, 2001; Bueno de Mesquita *et al.*, 2003; Gerring *et al.*, 2012, among others). However, India's democratic legacy cannot account for the large disparities in infant mortality among Indian states. The political institutions literature identifies centripetal (Gerring *et al.*, 2005) and parliamentary institutions (Gerring *et al.*, 2009) as two institutional alternatives that produce lower levels of infant mortality than their counterparts.[8] However, as political institutions at the subnational level in India mirror those at the national level, they cannot explain the subnational variation in infant mortality either.[9] This study holds democratic regime type and political institutions constant and focuses on alternative factors that vary within democracies.

Democratic attributes and infant mortality

Infant mortality has been a heavily studied subject among social scientists. Mosley and Chen (1984) provide a broad theoretical framework to analyze mortality from a social science perspective by identifying three categories of socio-economic

[8] The primary features of the centripetal model include a unicameral legislature with a unitary, parliamentary, and a list-proportional representation electoral system. See Gerring *et al.* (2005) for other characteristics of centripetal institutions. India is a parliamentary democracy, which is also the only primary centripetal feature present in the country as it has a federal, bicameral structure with a single-member district plurality (SMDP) electoral system.

[9] For instance, Indian states have a parliamentary system at the national and state-level and the SMDP electoral system is used for both national and state parliamentary elections.

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determinants: individual-level, household-level, and community-level factors. This paper focuses on community-level determinants by analyzing the effect of three democratic attributes among Indian states. The relationship between democratic attributes and infant mortality in contemporary times is integrally linked to historical differences in socio-cultural factors across regions within India. There is a discernable regional pattern in welfare outcomes where the Southern states seem to perform better than the Northern states.[10] These regional disparities may reflect distinct socio-cultural factors that have influenced the development of democracy across the country. Dyson and Moore (1983) discuss the distinct kinship structures between the Northern and Southern states and its consequences for autonomy of women. In contrast to the Northern states, among Southern states, marriages can be endogamous (spouses can belong to the same kinship group) such that women are able to maintain links with their kins and there are fewer restrictions on inheritance of property rights by women. Serra (1999: 9) argues that these kinship features in the South could arguably account for a 'more "progressive" and open culture', which is suggestive of a more democratic society in the South as compared with the North.

Yet, another explanation focuses on differences in the position of the lower castes between the Northern vs. Southern states. The numerical strength of the lower caste and caste-based politics in the South facilitated their mobilization (Church, 1984; Varshney, 2000).[11] In contrast, politics among Northern states revolved around the Hindu–Muslim cleavage, where the relationship between the lower and upper caste members was clientelistic with the lower caste dependent on the upper caste members (Rudolph and Rudolph, 1967).[12] The difference in status of the lower caste may have influenced the degree to which democratic attributes are prevalent in the two regions.[13]

Several studies focus on state- and district-level variations in welfare outcomes and services within India (Nag, 1983, 1989; Measham *et al*., 1999; Betancourt and Gleason, 2000; Besley and Burgess, 2002; Gaudin and Yazbeck, 2006; Bose, 2007; Bhattacharya, 2009; Pushkar, 2012) and this study contributes to this vast literature by proposing a democratic theory of infant mortality among Indian states.

[10] Several studies demonstrate that Northern/Northwestern states such as Uttar Pradesh, Madhya Pradesh, and Rajasthan and some Northeastern states such as Bihar and Orissa have performed relatively poorly in welfare outcomes as compared with the Southern states of Kerala, Andhra Pradesh, Karnataka, and Tamil Nadu where the Southern states are associated with lower infant and child mortality, lower fertility, higher age of marriage, lower ratios of female to male infant mortality, and higher female–male ratios, among other differences (Bardhan, 1974; Dyson and Moore, 1983; Murthi *et al*., 1995; Mayer, 2001; Drèze and Sen, 2002; Chakraborty and Kim, 2010).

[11] However, not all states neatly fit into the North–South dichotomy. For instance, Church (1984) mentions that lower caste participation was prevalent among the states of Kerala, Karnataka, West Bengal, Gujarat, as well as Maharashtra to an extent.

[12] The scenario is indeed changing in Northern India with the emergence of several politicians who belong to the lower caste (Varshney, 2000).

[13] Most of these studies, however, focus on factors that change little over time and thus can primarily explain cross-sectional variations among Indian states rather than within-state variations over time. In contrast, the theory presented in this paper is assessed through both fixed effects and non-fixed effects estimations that explain within-state as well as cross-sectional variations in infant mortality, respectively.

Existing development and health-related scholarship sheds light on various policy alternatives that influence health outcomes such as infant mortality. For instance, hospital infrastructure and quality (Aguilera and Marrufo, 2007), whether or not the mother is educated (Hobcraft *et al.*, 1984; Song and Burgard, 2011), time between childbirths (Trussell and Pebley, 1984), water pollution (Jorgenson, 2004), environmental factors and condition of mothers (Folasade, 2000), fertility levels, family health programs and female illiteracy (Macinko *et al.*, 2006), and infrastructure (Fay *et al.*, 2005), among others, are some of the proximate determinants of infant mortality. However, an imperative question arises, namely, what motivates elected officials to adopt any of these policies? I focus on three core democratic attributes – namely, political representation, citizens' participation, and electoral competition – that fundamentally shape the incentives of political representatives to adopt appropriate policies to reduce infant mortality.[14]

Political representation

Parties are the quintessential agents of representation in a democracy where they play the key role of linking citizens with their elected officials (Diamond, 1997). Scholars such as Schattschneider (1942: 3) assert, 'democracy is unthinkable save in terms of parties', while Lipset (1996: 169) refers to parties as 'the core institution of democratic politics'. Even though most democracies have political parties, the nature of party system varies between democracies.

The significance of party systems in democratic governance has been emphasized by prominent subnational studies on India. For instance, Chhibber and Nooruddin (2004) argue that two-party states are more likely to spend on public goods than multiparty states because political parties in the former have a larger winning coalition to please and private goods become unaffordable for political parties as the size of the winning coalition increases. Proposing a different explanation, Sáez and Sinha (2009) argue that as multiparty states signal uncertainty, political parties spend more in these states to keep their constituents happy as compared with two-party states. Interestingly, these two studies make theoretically plausible yet contradictory predictions about the relationship between party systems and government expenditure. In contrast to the two studies, this paper focuses on a different theoretical perspective, the representativeness of party systems and on a different outcome, infant mortality.

[14] While citizens may not be aware of infant mortality rates within states, health is an important concern for most people. This is demonstrated by the emphasis given to health issues by the Congress, Bhartiya Janata Party (BJP), and the Aam Aadmi Party (AAP) parties in the 2014 general election (*India Today*, 2014). Congress emphasized right to health for all, proposed an increase in health expenditure, investment in health infrastructure, and mobile health-care facilities in every district, among others. The BJP proposed a program to ensure universal health-care, modernize health-care infrastructure, and reduce out-of-pocket spending, among others. Similarly, the AAP proposed to introduce a 'Right to Healthcare' bill and ensure availability of affordable drugs, besides proposing other health reforms.

Drawing on institutional models of democracy such as the consensus (Lijphart, 2012) and centripetal models (Gerring *et al.*, 2005), I argue that political representatives in multiparty states are more likely to pursue policies that reduce infant mortality because a multiparty system is more inclusive as compared with a two-party system. Multiparty states enable inclusion of diverse ideas and preferences in the legislature by providing different groups an opportunity to collectively influence policy-making and better represent varied issue dimensions within society as compared with two-party states. The motivation for all parties to work together in multiparty systems can be attributed to the accountability mechanism in a democracy that encourage parties to cooperate, compromise, and negotiate with one another and enact comprehensive policies that are beneficial for the society as a whole. Moreover, parties can also hold each other accountable as multiple parties can closely observe actions of others and keep the populace better informed about the performance of their elected representatives. While both inclusion and accountability play an important role, inclusion is the distinguishing feature between a two-party and a multiparty state.[15]

Indeed parties in a two-party system may have an incentive to cater to the median voter and propose policies with a broader appeal that are centrist in nature (Downs, 1957). This is likely in a homogenous society but in a diverse society such as India, parties in a two-party system are unlikely to cater to the interests of myriad groups because the median voter may not be representative of all the groups within society. Thus, interests of smaller groups are more likely to be overlooked in a two-party system. It is plausible for parties in a two-party system to reach out to minorities but they are likely to do so only to get the necessary majority support and win the election in a two-party state. Minorities whose support is not required to win office will find it relatively difficult to get their voices heard in the policy-making process. This is less likely to happen in a multiparty system.

One potential criticism that can be made against a multiparty system is that it may give too much influence to smaller parties who could behave in an intransigent manner and make it difficult to pass comprehensive policies. While this is a plausible scenario, incentives to do so will be lower in a society with cross-cutting cleavages such as India where parties often have to appeal to different issue dimensions to expand their support base (Chandra, 2005). The prospect of alienating additional supporters in future elections will encourage parties to work with each other.

As an illustrative example let us consider the state of Tamil Nadu. The Congress Party had a stronghold over the state since independence from 1947 to the 1960s, with a support base that primarily consisted of the landed and the upper castes (Manivannan, 1992). Gradually, regional parties such as the Dravida Munnetra Kazhagam (DMK) and the All Indian Annadurai DMK emerged to represent the interests of the poor, lower castes, and women and smaller caste-based parties such as

[15] Note that parties in a two-party system can also be held accountable in a democratic state for their performance. However, a two-party system is not as inclusive in nature as compared with multiparty systems as fewer groups have an opportunity to influence policy-making in the former.

the Pattali Makkal Katchi (Toiling People's Party) party, the Pudhiya Thamizhagam party, the Makkal Tamil Desam Katchi party, among others, emerged to represent different caste-based groups (Wyatt, 2002). What is noteworthy is that changes in infant mortality correlate with changes in the ENP within the state.[16] Between 1980 and 1990, ENP was over 2 and infant mortality during this period reduced by 36%.[17] ENP fell to under 2 between 1991 and 2000 during which time infant mortality reduced by only 10%. From 2001 to 2011, ENP gradually increased to over 2 and during this period the state witnessed the steepest decline in infant mortality, 55%. This was especially significant considering that national infant mortality was reduced by 31% between 2001 and 2011, a lower rate of reduction than that of Tamil Nadu. This can be attributed to the state government's emphasis on universal coverage rather than targeted schemes (Kumar *et al*., 2011) and provision of better maternal and neonatal care in the last decade such as increasing the number of institutional deliveries, skilled personnel during deliveries, and providing incentives for trained personnel to work in rural areas, among others (Padmanaban *et al*., 2009).

In contrast, Madhya Pradesh exhibits poorer health outcomes with an average infant mortality of 98 from 1980 to 2011. One fundamental difference between the two states is that while lower castes/classes have been able to mobilize and gain representation in Tamil Nadu leading to a multiparty system, upper castes/classes have been dominant in Madhya Pradesh (Harriss, 1999; Varshney, 2000; Wyatt, 2002). Even though smaller parties such as the Gondwana Ganatantra Party and the Bahujan Samaj Party, among some others, have been trying to garner support in Madhya Pradesh (Ramshankar, 2004; Shankar and Sisodia, 2009), the state is still primarily characterized by a two-party system where the two main parties are the Congress and the BJP. Indeed while there has been an increase in the representation of lower castes and classes, this has primarily taken place under the auspices of the two main parties (Gupta, 2005, 2006). The consequence of the relative lack of representation of these groups can be seen in the relative lack of access to health services and prevalence of worse health outcomes especially among these groups in the state (Pallikadavath *et al*., 2004; Nagdeve, 2014). This discussion leads to the first hypothesis: *an increase in the number of parties reduces infant mortality*.

Citizens' participation

Citizens' participation has been referred to as 'the heart of democracy' (Verba *et al*., 1995). Indeed, widespread citizens' participation is essential for a vibrant and flourishing democracy where the masses have the opportunity to influence the governing process. However, democratic societies display tremendous variation in citizens'

[16] Effective number of parties takes into account each party's seat-share in the legislature. The measure is discussed in greater detail in the Data and methods section below.

[17] Infant mortality rates display a declining trend over time, which is why the examples focus on the rate of reduction.

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participation. Cleary's (2007) study provides evidence of a positive relationship between citizens' participation and responsiveness of elected officials among Mexican municipalities. I emphasize that participative citizens are able to induce accountability from elected officials regardless of the institutional or cultural differences between countries. This study on India provides an opportunity to assess the relationship between citizens' participation and infant mortality in an Indian context.

Citizens' participation can take various guises, ranging from voting in elections, referendums, holding peaceful protests, demonstrations, and attending public hearings, among others. I specifically focus on citizens' electoral participation and argue that high levels of voter turnout reduce infant mortality by signaling the presence of an overall active and vigilant populace. Voting is a frequent and collective activity that can influence broad outcomes within society (Verba *et al.*, 1978). It provides a mechanism through which political representatives can be held accountable. However, even though majority of the adults can vote in a democracy (Dahl, 1989), not all eligible voters exercise this right.

High voter turnout mirrors a society where citizens take advantage of the electoral mechanism to either reward representatives or penalize political representatives for their poor performance in office (Powell, 2000).[18] More importantly, high turnout is also indicative of a participative citizenry who are active in other aspects of politics (Inkeles, 1969; Verba *et al.*, 1995) such as participating in protests, demonstrations, among others, to induce better government performance. Kerala provides evidence of a politically active populace, where the people vote in large numbers and participate in various other aspects of politics as well.[19] The state has the highest levels of unionization in both the formal and informal sectors, which include the upper and lower classes (Heller, 2000). Moreover, citizens have been known to act collectively to monitor the functioning of schools and health centers (Franke and Chasin, 1997), so much so that the absence of a doctor at a primary health center has resulted in demonstrations being held by people at the local government office (Mencher, 1980).[20] The state is indicative of an active citizenry (Nag, 1983, 1989), which can be attributed to the social and religious reforms that weakened the caste system and enabled the poorer sections of society to join forces and influence democratic politics (Sen, 1992). Emphasizing the role of participation, Sen notes '… that government action, in order to be successful, requires popular participation' (1992: 276). Thus, an active citizenry induces political representatives to meet the needs of their supporters, thereby motivating them to perform better and reduce infant mortality.[21]

[18] This is especially applicable to countries where voting is not compulsory, such as India.

[19] Kerala has one of the highest voter turnouts among Indian states.

[20] Conventional wisdom asserts that high-income people are politically more active as compared with low-income groups (Verba *et al.*, 1995). However, in the case of India, studies suggest that the poor are becoming more politically active than the rich (Chatterjee, 2004; Harriss, 2005). Thus, citizens' participation in India is not restricted to the upper strata of society only.

[21] It is important to note that no one form of citizens' participation is necessarily better than the other for inducing good performance from elected officials. While in some cases protests may be a more effective

Lower voter turnout, on the other hand, indicates the presence of voters who do not use the electoral mechanism, making it easier for poor performing incumbents to remain in office. It is also more generally indicative of a passive populace who are not as participative in other aspects of politics. This may be tantamount to political representatives taking an indifferent attitude toward the needs and preferences of their supporters because the masses do not hold them accountable through political participation, resulting in higher levels of infant mortality.

For instance, the average voter turnout in Uttar Pradesh is ~51% from 1980 to 2011, one of the lowest in the country compared with the national average of 69%. Uttar Pradesh has an average infant mortality of 99, one of the highest in India, while the national average is 62. In contrast, the state of Kerala has a high voter turnout in the country, averaging 74% from 1980 to 2011 with an average infant mortality of 19, one of the lowest in the country. This discussion suggests *an increase in voter turnout reduces infant mortality.*

Electoral competition

Free and fair elections are the basic prerequisites for a democracy (Dahl, 1971).

Elections provide an opportunity for citizens to choose the candidates who are best suited to satisfy the needs of the masses. While elections are a regular phenomenon in all democracies, here again there is variation in electoral competitiveness.

Existing studies on electoral competitiveness and government performance provide inconclusive evidence. While Cleary's (2007) study does not find a significant relationship between competition and performance, subnational studies of the United States do find evidence of a positive link between the two (Griffin, 2006; Konisky and Ueda, 2011). These contradictory findings are intriguing as both Mexico and the United States have a SMDP electoral system.[22] This study on India enables one to revisit the impact of electoral competitiveness in a similar electoral context. I argue that higher levels of electoral competition, as captured by a smaller margin of victory, leads to lower levels of infant mortality as it signals the presence of viable competitors, thereby providing incentives for all candidates to perform well.[23]

tool for the citizens, in other cases, voting may be a better mechanism to redress grievances (Benjamin *et al.*, 1971). However, unlike voting, while other forms of political participation such as participation in protests, demonstrations, signing petitions, etc. may be useful mechanisms to exercise pressure on the political representatives, they are not the official mechanisms to install political representatives into office and may often be insufficient to remove the latter from office (with few exceptions where public demands have coerced a political representative to resign from office).

[22] Moreover, none of these studies assess the impact of electoral competitiveness on infant mortality. Thus, the impact of electoral competitiveness on an important welfare outcome such as infant mortality still remains to be evaluated.

[23] Even though political representation and electoral competition could coexist within a society, they are two distinct concepts. While political representation captures the extent to which different issue dimensions within society find a voice in the legislature, electoral competition focuses on the closeness of the elections between the top two competitors.

Competitive elections provide incentives for the incumbents and the challengers to appeal to the electorate with the promise of better performance. The incumbents are aware of alternative challengers who could potentially displace poor performing officials. Competitiveness prevents incumbents from governing poorly and exercises the necessary pressure on them to be proactive. Challengers, on the other hand, constantly strive to come to power. Here again, given the competitive nature of elections, they need to appeal to the electorate with the promise of better performance than the incumbents.[24] If elected, political representatives have to satisfy the needs and preferences of multiple segments of population by implementing policies that enhance societal welfare as a whole. Moreover, the presence of cross-cutting cleavages in India makes it easier and imperative for contestants to make broader appeals to mobilize a larger number of supporters by emphasizing different cleavage dimensions (Chandra, 2005). This adds a dimension of fluidity to the support-groups of contestants as citizens can identify with alternative political parties. Competitive elections propel all political representatives to perform well, regardless of the electoral system. The closer or more competitive the election, the easier it becomes for challengers to replace incumbents. Thus, political parties cannot get complacent in a competitive environment.

For instance, extreme electoral competitiveness in the state of Andhra Pradesh in the 2004 elections propelled political parties competing in the state to provide greater welfare benefits (Elliott, 2011). The margin of victory (vote share) between the winner [Indian National Congress Party (INC)] and its primary challenger [the grand alliance led by the Telugu Desam Party (TDP)] in the state election was <1%. Between 2004 and 2011, the reduction in infant mortality in Andhra Pradesh was 27% as compared with a 21% aggregate reduction in infant mortality among all Indian states during the same time period, indicating a steep decline in infant mortality in the state following competitive elections. In the 2009 election campaign, the INC proposed to provide free health-care services for serious illnesses, subsidized housing projects, pension scheme for widows, scholarships for relatively deprived sections of society, among others. The TDP in an attempt to appeal to the electorate, proposed to provide free health-care to a broader range of illnesses than those proposed by the INC and give cash transfers to the poor families as well, among other things. Even though the INC won the 2009 elections, the competitiveness of the election motivated the challengers to appeal to the electorate with the provision of greater welfare goods and services.

Alternatively, in a relatively uncompetitive system, there are fewer incentives for incumbents to be responsive to the needs of the populace. The lack of government initiative to generate development in Bihar demonstrates the consequences of an uncompetitive system. Bihar was under the rule of the Rashtriya Janata Dal (RJD) party

[24] It is plausible that none of the political parties are able to attain a majority of seats in the state legislature, which necessitates the formation of a coalition government. This does not change the electoral incentives for good performance. The coalition parties need to cooperate while in office and deliver on their promises to ensure that they are able to win office in forthcoming elections as well.

from 1990 to 2005.[25] Elections were relatively uncompetitive with the incumbents winning elections over these 15 years with an ~12.5% margin of victory. There was an 18% reduction in infant mortality during this time period in the state as compared with a 38% reduction in infant mortality among all Indian states. Moreover, there was no discernable improvement in the condition of the incumbents' supporters, namely the rural poor (Robin, 2004) and 15 years of misrule and poor governance adversely influenced the development of the state (Sharma, 1995).[26] Thus, even though there were periodic elections, they were insufficient to motivate the incumbents to satisfy the needs of the populace.[27] This discussion suggests *a smaller margin of victory reduces infant mortality*.

Data and methods

This paper analyzes the impact of three core democratic attributes on infant mortality on a sample of 15 major Indian states from 1980 to 2011.[28] The primary dependent variable is infant mortality, which is measured by the number of infant deaths (of 1 year or less) per thousand live births. As the variable is skewed, the log of infant mortality is used in all the models. The data for infant mortality are available from the Sample Registration Systems (various years) surveys published yearly by the Office of the Registrar General. The primary independent variables are political representation, citizens' participation, and electoral competition. Political representation is measured with the effective number of parliamentary parties, which takes into account each party's seat-share in the 'Vidhan Sabha' (lower house of the state legislature).[29] Citizens' participation is measured by voter turnout to 'Vidhan Sabha' elections, which is calculated as a percentage of registered voters.[30]

[25] The RJD was formerly known as the Janata Dal.

[26] The incumbents were repeatedly voted into office because there were no strong competitors to challenge their position. However, even though the party remained in power for almost 15 years, their vote and seat shares dwindled over time.

[27] The 2005 elections finally witnessed a turnover in power with the National Democratic Alliance assuming office. Governance in Bihar has gradually improved since then with a 27% reduction in infant mortality between 2005 and 2011 as compared with a 20% national reduction among all Indian states.

[28] Consistent with existing studies (Chhibber and Nooruddin, 2004; Sáez and Sinha, 2009, among several others), this paper also primarily focuses on the major Indian states. The states included in the sample are Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal.

[29] Alternative ways of measuring the number of parties may include the effective number of electoral parties or counting the number of all existing parties. However, the theoretical link between political representation and infant mortality focuses on the role of political parties in state legislatures. Thus, effective number of parliamentary parties is an appropriate measure of political representation. The measure of effective number of parliamentary parties is constructed by using Laasko and Taagepera's formula (1979): Effective number of parliamentary parties $= 1/\Sigma s_i^2$, where s_i is the percentage of seats won by the i^{th} party at the legislature. Independent or 'others' are treated as a single party.

[30] While voter turnout measured as a percentage of voting age population may be a more appropriate measure, voting age population data for Indian states are not publicly available. Given the data limitations, findings need to be interpreted with circumspection.

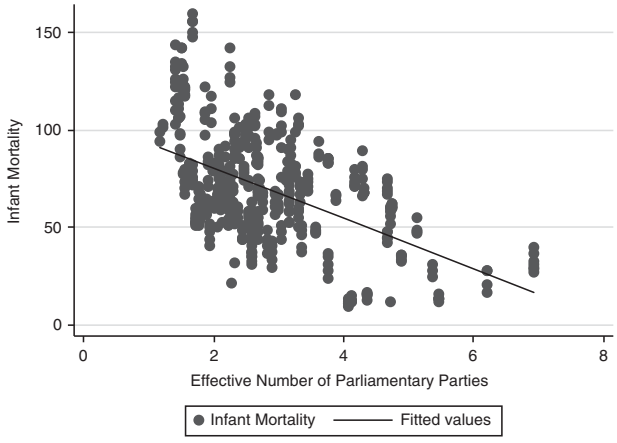

Figure 2 Effective number of parties and infant mortality.

Electoral competition is measured with electoral margin of victory, which is the percentage difference in vote share between the largest and the second largest recipients of votes.[31] The data for the three primary independent variables have been calculated from the Election Commission of India (various years).

Over the 32-year period of analysis, infant mortality has been declining across all the states in India and this trend is evident globally as well, plausibly because of the advancement in science and technology, improvements in health-care services and products, and greater economic development. However, there is a discernable regional pattern within India where the Southern states display lower levels of infant mortality as compared with the Northern states. In the case of the three democratic attributes, while the ENP, voter turnout, and margin of victory do change from election to election, in general, we do observe the Southern states displaying a more democratic society with a higher number of parties and voter turnout as compared with the Northern states. However, not all states neatly fit into the North–South dichotomy, which is why a state-level analysis such as this is especially beneficial.

Figures 2, 3, and 4 present scatter-plots with fitted values between the theoretical variables of interest.[32] In Figures 2 and 3, the downward sloping fitted lines indicate a negative correlation between ENP, voter turnout, and infant mortality suggesting that multiple parties and higher levels of voter turnout are associated with lower levels of infant mortality. In Figure 4, the upward sloping fitted line indicates a positive correlation between margin of victory and infant mortality suggesting that

[31] Most Indian states are unicameral with the exception of six states that are bicameral. Bicameral states have a Vidhan Sabha (lower house) and a Vidhan Parishad (upper house). I calculated the effective number of parties, voter turnout, and margin of victory of the lower house for the states that are bicameral. Effective number of parties, voter turnout, and margin of victory are only likely to change in an election year. Therefore, I use the same values of the three variables for the intervening years between elections.

[32] The scatter-plots display data for the 15 major Indian states covered in the baseline analysis.

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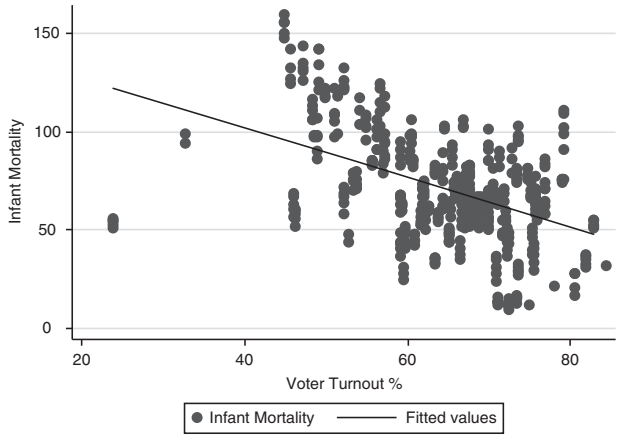

Figure 3 Voter turnout and infant mortality.

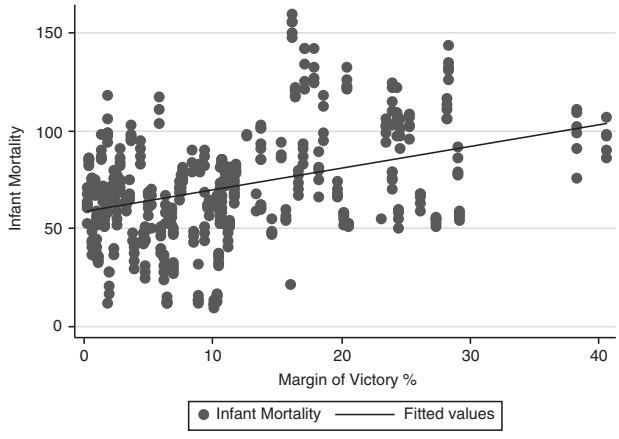

Figure 4 Margin of victory and infant mortality.

a larger margin of victory is associated with higher levels of infant mortality, although the correlation is weaker in Figure 3 than in Figures 1 and 2. Overall, the scatter-plots provide some insight into the relationship between the theoretical variables of interest.

The theory is also put to a more stringent test by holding other variables constant. I draw on the existing cross-national literature to account for alternative explanations of infant mortality. Income per capita is a standard control in most studies (Przeworski *et al.*, 2000; Gerring *et al.*, 2005, 2009; Ross, 2006; Gerring *et al.*, 2012). Income may influence infant mortality where states with higher income have more resources to address the welfare needs of their residents. I measure income with the log of per capita state domestic product at constant price. The data are available from

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the Reserve Bank of India (various years). Population size is yet another factor that may influence infant mortality where states with larger populations find it difficult to provide health services to all its residents (Zweifel and Navia, 2000; Enikolopov and Zhuravskaya, 2007). I use the log of population and the data are available from the Census of India (various years), published by the Office of the Registrar General.[33] State and year dummies have been included in the baseline models to guard against the possibility of state or time-specific effects influencing the relationship between the primary dependent and independent variables.

An ordinary least squares panel-corrected standard error (PCSE) estimation technique with a lagged dependent variable is used to assess the relationship between the theoretical variables of interest. The PCSE technique enables me to address the problem of unit heteroskedasticity (Beck and Katz, 1995). A lagged dependent variable is able to control for alternative factors that may influence infant mortality as well as address serial correlation. As it has been argued that a lagged dependent variable may be atheoretical and could overshadow the effect of substantively significant variables (Achen, 2000), robustness tests include findings without a lagged dependent variable as well.

Findings

Table 1 shows the impact of ENP, voter turnout, and electoral margin of victory on infant mortality. Model 1 shows that ENP has a statistically significant and negative effect on infant mortality, suggesting that a state with a higher ENP leads to lower levels of infant mortality. This is consistent with the hypothesized relationship between the two variables. The paper argues that states with more parties present an opportunity for multiple political parties to influence policy-making, thereby encouraging parties to work together toward comprehensive policies. Moreover, cross-cutting cleavages provide an additional incentive for parties in multiparty states to formulate policies with a broader appeal to the masses. Thus, higher ENP captures a more representative society that enables diverse societal interests to be incorporated in policy-making and the findings provide support to this theoretical proposition.

Model 2 shows the effect of voter turnout and the finding indicates that it has a statistically significant and negative effect on infant mortality, suggesting that high voter turnout leads to lower levels of infant mortality. This is also consistent with the theoretical perspective proposed in this paper. High levels of voter turnout signal the presence of an overall active and vigilant populace, thereby increasing the accountability of elected officials. Political representatives, in turn, perform well as they are under the constant scrutiny of the public.

Margin of victory is statistically insignificant in model 3. The variable reaches statistical significance in some of the models discussed below, however, its effect is

[33] Population data for Indian states are only available for decades. I impute the population data for the intervening years to create a complete data set.

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Table 1. Democratic attributes and infant mortality

	Model 1	Model 2	Model 3	Model 4
L. (log) infant mortality	0.795 (0.0432)***	0.798 (0.0433)***	0.797 (0.0438)***	0.796 (0.0430)***
L. ENP	−0.0130 (0.00461)***			−0.0125 (0.00494)**
L. voter turnout		−0.000920 (0.000372)**		−0.000684 (0.000355)*
L. margin of victory			0.000377 (0.000331)	−0.000217 (0.000334)
L. (log) SDP pc	−0.0363 (0.0280)	−0.0351 (0.0280)	−0.0285 (0.0283)	−0.0413 (0.0278)
L. (log) population	0.0287 (0.0657)	0.00647 (0.0656)	0.00616 (0.0662)	0.0294 (0.0666)
Constant	1.001 (0.453)**	1.101 (0.450)**	0.992 (0.450)**	1.079 (0.456)**
Time dummies	Yes	Yes	Yes	Yes
State dummies	Yes	Yes	Yes	Yes
Observations	463	463	463	463
R^2	0.989	0.989	0.989	0.989
Number of states	15	15	15	15

L. = one year lag; ENP = effective number of parties; SDP pc = state domestic product per capita. Standard errors in parentheses.
$^{***}P < 0.01$, $^{**}P < 0.05$, $^{*}P < 0.1$.

not robust to alternative specifications.[34] The theoretical argument proposed in this paper is that greater electoral competition motivates incumbents and challengers to perform well, given a higher degree of competitiveness. However, while an uncompetitive environment may make the incumbents complacent, the challengers still desire to win office and thus may strive to influence policy and enhance well-being of the masses. These contradictory theoretical perspectives could possibly account for the lack of significance of the variable. Clearly, the effect of electoral competition needs to be explored further to understand the ways in which this core democratic feature influences welfare outcomes.

Model 4 includes all three primary independent variables in one model. The results remain unchanged for ENP and voter turnout – where both variables retain statistical significance. Margin of victory, once again, ceases to have a significant effect on infant mortality. In terms of substantive significance, increasing the ENP and voter turnout from their minimum to maximum values decreases infant mortality by approximately 7 and 4%, respectively.[35] Number of parties and voter turnout capture attributes of political representation and citizens' participation and the findings demonstrate the significance of these two core features in influencing performance of political representatives.

State domestic product per capita and population do not reach statistical levels of significance in any of the models in Table 1. While they are significant in some of the models discussed below, their effect is not robust across alternative model specifications. This suggests that political factors play a particularly important role

[34] Turnover of power was used as an alternative measure of electoral competition but the variable failed to reach statistical levels of significance in the majority of the models.

[35] Estimates from model 4 were used to calculate substantive effects while holding the control variables at their mean values.

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in influencing public health outcomes. The baseline models are also very stringent with a lagged dependent variable as well as time and state dummies, which may partially account for the reduced influence of control variables. The lagged dependent variable remains significant in all four models, demonstrating that the previous years' level of infant mortality is an important predictor of infant mortality in the next year.

Robustness tests

Various sensitivity tests were carried out to analyze the robustness of the findings. The baseline models were estimated with a lagged dependent variable that addresses the problem of serial correlation and captures any other factors that could influence infant mortality. As a first robustness test, instead of a lagged dependent variable I estimated the baseline models with AR(1) to address serial correlation and control for additional determinants of infant mortality. Party dummies are included for states where one of the three primary national parties held a plurality of seats in state legislatures, namely the BJP, the Congress, and the leftist parties, namely, Communist Party of India (CPI) or Communist Party of India, Marxist [CPI(M)]. These parties indicate distinct ideological underpinnings where the BJP is considered right of center, the Congress is considered centrist, while CPI/CPI(M) is considered leftist (Chhibber and Nooruddin, 2004). A regional party dummy variable is also included for states where regional parties attained a plurality of seats in the state legislature. Data for the party variables were calculated from the Election Commission of India (various years). In order to capture federal assistance to state governments, grants from the center is included in the models as well (Reserve Bank of India, 2010). Female literacy and percentage of urban population are two other factors that could influence infant mortality where higher values of female literacy and a higher percentage of the urban population may be associated with lower levels of infant mortality. The data are available from the Census of India (various years), published by the Office of the Registrar General.

The findings are presented in Table 2.[36] Among the control variables, higher income and greater grants from the center are associated with lower levels of infant mortality while states where the BJP has held a plurality of seats is associated with higher levels of infant mortality. Among the theoretical variables of interest, ENP and voter turnout remain significant in all the models and while margin of victory is significant in model 3, it ceases to have a significant effect in model 4 where all three primary independent variables are included. This reconfirms the effect of political representation and citizens' participation.

[36] The time period of analysis for this table varies from the other analyses due to data limitations of the control variables. The analysis ranges from 1981 to 2008. These models have several dummy variables, as a result of which the constant term was being dropped from the analysis. In order to avoid this problem, two additional time dummies were dropped from the models in Table 2.

Table 2. Democratic attributes and infant mortality (without a lagged dependent variable and including additional control variables)

	Model 1	Model 2	Model 3	Model 4
L. ENP	−0.0149 (0.00603)**			−0.0120 (0.00694)*
L. voter turnout		−0.00139 (0.000552)**		−0.00114 (0.000561)**
L. margin of victory			0.00101 (0.000455)**	0.000274 (0.000536)
L. (log) SDP pc	−0.0899 (0.0425)**	−0.0972 (0.0418)**	−0.0930 (0.0426)**	−0.0916 (0.0418)**
L. (log) population	0.0736 (0.0915)	0.0858 (0.0935)	0.0925 (0.0905)	0.0842 (0.0918)
L. urban population	−0.00543 (0.00579)	−0.00408 (0.00578)	−0.00374 (0.00578)	−0.00512 (0.00577)
L. female literacy	0.00680 (0.00471)	0.00653 (0.00468)	0.00649 (0.00474)	0.00701 (0.00465)
L. left	0.0308 (0.0735)	0.0129 (0.0718)	0.0116 (0.0719)	0.0265 (0.0730)
L. Congress	0.0147 (0.0119)	0.0180 (0.0119)	0.0121 (0.0120)	0.0134 (0.0119)
L. BJP	0.0362 (0.0144)**	0.0431 (0.0142)***	0.0357 (0.0146)**	0.0396 (0.0142)***
L. regional party	0.0175 (0.0139)	0.0236 (0.0149)	0.0183 (0.0144)	0.0240 (0.0145)*
L. grants from center	−1.68e−05 (3.50e−06)***	−1.78e−05 (3.58e−06)***	−1.69e−05 (3.58e−06)***	−1.73e−05 (3.57e−06)***
Constant	4.379 (0.543)***	4.648 (0.583)***	4.238 (0.537)***	4.628 (0.583)***
Time dummies	Yes	Yes	Yes	Yes
State dummies	Yes	Yes	Yes	Yes
Observations	410	410	410	410
R^2	0.981	0.981	0.981	0.982
Number of states	15	15	15	15

L. = one year lag; ENP = effective number of parties; BJP = Bhartiya Janata Party.
Standard errors in parentheses.
$^{***}P < 0.01$, $^{**}P < 0.05$, $^{*}P < 0.1$.

Table 3. Democratic attributes and infant mortality (without time dummies)

	Model 1	Model 2	Model 3	Model 4
L. (log) infant mortality	0.826 (0.0376)***	0.826 (0.0372)***	0.828 (0.0376)***	0.826 (0.0374)***
L. ENP	−0.0113 (0.00470)**			−0.0111 (0.00496)**
L. voter turnout		−0.000922 (0.000389)**		−0.000764 (0.000369)**
L. margin of victory			0.000236 (0.000341)	−0.000344 (0.000339)
L. (log) SDP pc	−0.115 (0.0312)***	−0.113 (0.0310)***	−0.109 (0.0313)***	−0.118 (0.0313)***
L. (log) population	−0.0464 (0.0496)	−0.0531 (0.0512)	−0.0671 (0.0525)	−0.0404 (0.0520)
Constant	2.079 (0.441)***	2.105 (0.442)***	2.078 (0.444)***	2.114 (0.440)***
State dummies	Yes	Yes	Yes	Yes
Observations	463	463	463	463
R^2	0.985	0.985	0.984	0.985
Number of states	15	15	15	15

L. = one year lag; ENP = effective number of parties.
Standard errors in parentheses.
$^{***}P < 0.01$, $^{**}P < 0.05$, $^{*}P < 0.1$.

Table 4. Democratic attributes and infant mortality (without state dummies)

	Model 1	Model 2	Model 3	Model 4
L. (log) infant mortality	0.972 (0.0150)***	0.991 (0.0149)***	0.994 (0.0142)***	0.968 (0.0157)***
L. ENP	−0.0123 (0.00399)***			−0.0122 (0.00395)***
L. voter turnout		−0.000565 (0.000320)*		−0.000522 (0.000305)*
L. margin of victory			0.000389 (0.000315)	−5.75e−05 (0.000289)
L. (log) SDP pc	−0.0230 (0.0113)**	−0.0113 (0.0111)	−0.0109 (0.0112)	−0.0235 (0.0113)**
L. (log) population	−0.00556 (0.00446)	−0.00835 (0.00488)*	−0.00544 (0.00453)	−0.00795 (0.00478)*
Constant	0.365 (0.159)**	0.187 (0.163)	0.118 (0.152)	0.428 (0.170)**
Time dummies	Yes	Yes	Yes	Yes
Observations	463	463	463	463
R^2	0.987	0.987	0.987	0.988
Number of states	15	15	15	15

L. = one year lag; ENP = effective number of parties.
Standard errors in parentheses.
$^{***}P < 0.01$, $^{**}P < 0.05$, $^{*}P < 0.1$.

The next two tables present findings without time dummies (Table 3) and without state dummies (Table 4). Both ENP and voter turnout remain statistically significant across all the models in Tables 3 and 4. Similar to the baseline findings, margin of victory remains insignificant.

A series of additional robustness tests were carried out and the results are presented in the appendix. Table 5 in supplementary material shows the effect of the three democratic attributes on infant mortality among 28 Indian states.[37] Extending the analysis to 28 states enables us to see if the baseline results on the 15 major states

[37] India comprises 29 Indian states and seven union territories. As of June, 2014, the 29th Indian state of Telangana was created. This study focuses on 28 states for which data are available.

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are applicable to all states in India as well, despite the differences among the states. While ENP remains significant across all the models, voter turnout is significant in model 2 but insignificant in model 4. This may suggest that the effect of voter turnout may not apply to all the states in India. A plausible explanation could be that voting is not very informational for political representatives, as it does not inform officials about the specific needs and preferences of the masses (Verba *et al.*, 1978). Margin of victory is significant in model 3 but remains insignificant in model 4.

Table 6 in supplementary material presents findings with 2, 3, and 4-year lags. I did not extend the number of lags beyond 4 since elections are generally held every 5 years within states when values of the three independent variables of interest are likely to change. The findings indicate that the ENP is the only variable that remains statistically significant across all models. This is consistent with the baseline and all other robustness tests as well. Thus, the representational benefits of multiple parties are also prevalent over a longer period of time. Even though voter turnout is significant in the majority of models discussed above, it fails to reach statistical levels of significance in the extended lagged models. Voting only takes place during elections and while it is indicative of an active citizenry (Inkeles, 1969; Verba *et al.*, 1995) that may not always be the case. Perhaps a sustained indication of citizens' participation on a day-to-day basis such as participation in protests, contacting representatives, attending public meetings, may be better able to capture an active citizenry who can hold representatives accountable over a longer period of time. However, data constraints make it difficult to do so here. Margin of victory fails to reach statistical levels of significance in two of the three models. Contrary to expectations, it is negative and significant in model 1, which reiterates the lack of a definitive conclusion about the variable. Tables 7 and 8 in supplementary material assess the baseline models without state domestic product and population, respectively. Table 9 in supplementary material presents models with a one-step generalized method of moments dynamic estimation technique (Arellano and Bond, 1991). ENP continues to have a statistically significant effect on infant mortality while voter turnout and margin of victory do not reach statistical levels of significance in any of the models. Overall, the number of parties has the strongest effect on infant mortality, further attesting to the crucial influence of political parties in particular and political representation in general, in enhancing societal welfare.

Conclusion, implications, and future research

Understanding how democratic politics affects government performance is a core theme in comparative politics and political science at large (Dahl, 1971; Bueno de Mesquita *et al.*, 2003; Lijphart, 2012) and the spread of democracy around the world makes this research question as substantively important as it is theoretically intriguing. I argue that these incentives to perform well are contingent on the variation in three core democratic attributes – political representation, citizens' participation, and electoral competition. The empirical analyses demonstrate that

political representation plays the most important role in this regard. The paper contributes to the growing research on subnational studies that focus on democratic attributes and welfare outcomes within India (Besley and Burgess, 2002; Chhibber and Nooruddin, 2004; Sáez and Sinha, 2009; Pushkar, 2012).

This paper presents a first-cut analysis in exploring the links between three democratic attributes individually and infant mortality within a democracy, and the results demonstrate the significance of ENP. Analyzing the possibility of an interactive relationship between the three attributes and welfare outcomes could be a promising follow-up project. Alternatively, much like Indian states, democratic countries also vary in essential democratic attributes of representation, participation, and competition and future research can empirically test to see if variations in core democratic attributes can account for disparities in human welfare outcomes between democracies.

Like most studies, this paper has its limitations. One limitation is that while it attempts to explain state-level variations in infant mortality, it is unable to account for variations within states, for instance at the district level. Future research could explore the role of politics at a more disaggregated micro level. Additionally, as this paper primarily focuses on the role of politics within a democracy, it is unable to account for variations within non-democracies. For instance, non-democratic countries such as China and Cuba have made significant strides in improving public health outcomes. Provision of broad-based health services played an important role in reducing infant mortality rates within both countries. Presence of a strong labor movement and other mass organizations, a brief stint with democracy from 1940 to 1952, and consolidation of state power post-1959 in Cuba (Waitzkin, 1983; McGuire and Frankel, 2005) while Mao's policies of universal welfare coverage, provision of health services at a low-cost, and health awareness campaigns in China (Hesketh and Zhu, 1997; Banister and Hill, 2004) played an important role. Future research can further explore the determinants of infant mortality among non-democracies to get a comprehensive understanding of political dynamics and welfare outcomes across regime types.

The primary implication of this study is that instituting a minimalistic democratic regime that barely permits representation, participation, and competition may be insufficient to motivate political leaders to perform well. Democratic regimes need to be more representative, participative, and competitive in nature to meet the welfare needs of the citizens.[38] Ensuring that multiple segments of society can voice their concerns during the policy-making process through their elected representatives can enhance political representation. Existing research identifies the nature of the electoral system (Duverger, 1954) or societal cleavages (Eckstein, 1963; Lipset and Rokkan, 1967, among others) as two determinants of party systems. While societal cleavages may be difficult to manipulate, adoption of a proportional

[38] Even though voter turnout and margin of victory, which measure participation and electoral competition, respectively, do not retain statistical significance across alternative models, it would be premature to conclude that participation and competition are not important in a democracy.

electoral system may influence the number of parties. Additionally, reforming existing rules within proportional electoral systems may also increase the number of parties such as increasing district magnitude or reducing the electoral threshold so as to make it easier for additional parties to gain representation. The onus of ensuring high levels of citizens' participation eventually lies with the citizens who need to use the opportunity given to them in a democratic society to hold their political representatives accountable through various forms of participation. Prevalence of free and fair elections can increase the likelihood of competitive elections. Additionally, parties that make a broader appeal to the masses can challenge the dominance of an incumbent party, thereby facilitating electoral competitiveness.

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Supplementary material

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