

# The Political Impact of Monetary Shocks: Evidence from India's 2016 Demonetization\*

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First draft  
Please do not cite

November 16, 2017

## Abstract

What are the political consequences of monetary shocks? While theories of retrospective voting suggest that voters should punish incumbents for negative economic shocks within incumbents' control, other works suggest voters' ability and willingness to do so are limited. We examine this issue by tracing the impact of the sudden demonetization of 86% of India's currency in 2016. We argue and show, using difference-in-difference and instrumental variables analyses, that the economic impact of demonetization was felt most acutely in relatively "unbanked" areas, where households and businesses lack access to the formal financial system and are most cash-dependent. Further, the BJP, the incumbent party that implemented demonetization, was penalized the least in relatively unbanked districts where people were economically hurt the most. We speculate why this might be the case. Our findings illustrate that monetary policy has important distributional consequences that shape voters' political behavior.

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\*For excellent research assistance, we thank Priyadarshi Amar, José-Luis Enriquez, Alyse Samoray and Soong Kit Wong.

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How do voters respond to economic shocks? This is an important question for the social sciences, especially in the wake of a decade of financial crises, recessions, and rising populist nationalism. In this paper, we focus on the case of India's sudden and rapid demonetization in 2016, asking what the effects of demonetization have been on the support for the Bharatiya Janata Party (BJP), the party of demonetization. On November 8, India's Prime Minister, Narendra Modi, announced the sudden demonetization of 86% of India's cash in circulation. With immediate effect, the two largest notes in India, the Rs. 500 and Rs. 1,000 bills were deemed to no longer be legal tender, except for a handful of specific exceptions (Ministry of Finance 2017, 53). Holders of demonetized currency had until December 30 to deposit these notes into banks and receive new ones. By August 2017, 99% of demonetized notes had been exchanged for new, legal tender.

In the study of voter behavior, the dominant paradigm conceives of voters as rational agents who vote retrospectively, punishing incumbents for poor performance and rewarding them for their successes (Key 1966). The degree to which voters respond in such a way is thought to be dependent on a number of factors, including the institutional context (Duch and Stevenson 2008), the availability of information (Ferejohn and Kuklinski 1990), and voters' cognitive constraints (Anderson 2007). Other works dismiss this intellectual edifice altogether, arguing that individuals think of themselves as being a part of groups, associate groups with parties, and therefore vote for the party with which their group is associated (Achen and Bartels 2016). This approach is consistent with a substantial literature in comparative politics, which views vote choice across the developing world as being driven by ethnicity (Chandra 2007).

which it claims will enhance job opportunities for the poor and accelerate India's economic development.<sup>2</sup> Early in the process, demonetization was seen by some as an opportunistic fiscal grab by the government, since any notes not deposited could have reduced the central bank's liabilities, and increased its dividends to the central government.

Scholars and observers remain skeptical that demonetization has achieved these stated goals. Since 99% of the Rs. 500 and Rs. 1,000 notes were exchanged, the government saw little to no fiscal gain from demonetization, and it is not yet clear that levels of corruption, terrorism, or tax evasion have changed.<sup>3</sup> Moreover, demonetization does little to address longer-term, structural incentives for actors in the Indian economy to engage in corruption. Nonetheless, demonetization had a substantial and immediate impact on the Indian economy. In the two months following demonetization, the Indian money supply halved. This led to a sharp drop in economic activity and job losses throughout the country.<sup>4</sup> Demonetization appears to have further accelerated the decline in India's economic growth. GDP growth, which had already begun to slow in the first half of 2016, fell further in the months after demonetization, from an average of 9.1% in the first three months of 2016, to an average of 5.7% in April–June 2017.<sup>5</sup> Thus, while it is too soon to know the longer-term macroeconomic impact of demonetization—or whether it will achieve the broader, stated structural development goals of the Modi government—it is clear that demonetization has had an immediate, substantial negative impact on the Indian economy.

How did voters respond to the negative economic shock of demonetization? To develop our theoretical expectations of how voters might respond, we draw the literatures on political behavior mentioned above. First, the economic, retrospective voting literature (Duch and Stevenson 2008; Key 1966) suggests that Prime Minister Modi's Bharatiya Janata Party (BJP) would perform worse in areas hit hardest economically by demonetization. This is particularly the case since the BJP clearly and proudly took responsibility for demonetization, so voters will have had no problem

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<sup>2</sup>Ibid.

<sup>3</sup>"India Demonetisation Failed to Purge Black Money," *Financial Times*, August 31, 2017.

<sup>4</sup>Amy Kazmin, "One Year On, Jury Is Still Out On India's 'Black Money' Ban," *Financial Times*, November 7, 2017.

<sup>5</sup>Ibid.

attributing the effects of demonetization to the party. An alternative literature suggests a variety of psychological and non-material reasons why voters might fail to penalize the BJP, despite the adverse economic effects of demonetization (Achen and Bartels 2016; Healy and Malhotra 2013).

Since the Indian demonetization was a country-wide shock, assessing its overall effects would require a cross-national comparison of countries that experienced the shock (India) with others. A major shortcoming of such an exercise would be that countries differ in substantial, frequently unobservable ways for which cross-country regressions (and related methods, such as matching or synthetic control) have difficulty controlling. An alternative strategy, which we follow here, is to examine subnational variation in the political effects of demonetization as its economic consequences vary. It is worth noting that this strategy does not allow us to examine the total effects of demonetization, since all districts were subject to the shock, but rather the relative effects of demonetization across districts.

We argue that the economic impact of India's 2016 demonetization was likely to be felt most in relatively "unbanked" areas, where households and businesses operate overwhelmingly in the informal economy, are most dependent on cash and lack access to financial intermediation. In these areas, converting 500 and 1,000 rupee notes into new, legal denominations was most difficult and time-consuming. Further, individuals and firms in these districts have poorer access to credit, which will have made it difficult to smooth economic activity (consumption and investment) in response to the shock.<sup>6</sup> Using new, micro-level and high frequency economic data we confirm that investment activity did indeed reduce after demonetization, and that this was particularly the case in relatively unbanked districts.

To examine the political effects of demonetization, we then analyze how the BJP performed in the first state elections after demonetization. Consistent with theories of economic voting, we find that the BJP's vote share slightly declined after demonetization. We provide well-identified evidence using difference-in-difference and instrumental variables estimators to suggest that the BJP was penalized the least in districts with few bank branches, whereas its support declined in districts with many branches. Thus, the BJP performed the best in districts that we have shown

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<sup>6</sup>For evidence on the role of Indian banks in the development process, see Burgess and Pande (2005).

were materially hurt the most by demonetization. We discuss the potential reasons for this finding.

Our paper contributes to the literature on economic voting by examining the effects of a large, negative and clearly attributable shock on voter behavior. It also furthers the literature on money and finance in international political economy, which has recently begun to explore the impact of monetary shocks and financial crises on individual preferences and voting behavior (Ahlquist, Copelovitch and Walter 2017; Bearce and Tuxhorn 2017; Bechtel, Hainmueller and Margalit 2014; Broz and Ansell 2014; Curtis, Jupille and Leblang 2014; Fernández-Albertos and Kuo 2016; Nelson and Steinberg 2018; Walter et al. 2018). The related literature on trade policy (Kuo and Naoi 2017) emphasizes the importance of material factors (Lake 2009), while others have argued instead that non-material factors are equally, if not more important (Margalit 2012). Excellent recent work bridges the gap between these approaches by exploring the complex linkages between material and non-material interests when examining gender and inequality concerns (Lü, Scheve and Slaughter 2012; Naoi and Kume 2015).

The remainder of the paper proceeds as follows. First, we discuss incidence of demonetization across the world, and in India in particular. Second, we explain how predetermined variation in bank branches, some of which was policy-induced, allows us to statistically identify variation in the economic and political effects of demonetization as bank branches vary. We then present our empirical analyses illustrating the economic and political impact of demonetization at the district-level in India. Finally, we conclude by considering the reasons why voters' materially harmed by demonetization were more likely to support the BJP in these elections. Ultimately, our analysis and results suggest that the 2016 Indian demonetization had substantial distributional and political effects.

## **1 Demonetization in India and elsewhere**

Demonetization is a frequent occurrence across the world. One type of demonetization is a sudden change in the money supply in conjunction with hyperinflation, political unrest, or war. These episodes are large, destabilizing shocks to the economy, as in the case of the famous interwar

hyperinflation in Weimar Germany (1922–23), Zimbabwe in the last two decades, and Myanmar (1987), where the military government actually triggered massive inflation through a sudden and poorly-planned demonetization program.<sup>7</sup> The second variety of demonetization is the more gradual, planned removal of certain notes and denominations. As in the Indian case, the rationale for this has frequently been to target “black money” and fight corruption and tax evasion. Singapore in 1945, Ghana in 1982 and Australia in 1996 all had slower, planned demonetizations. The Eurozone is also in the process of a gradual, planned demonetization aimed at fighting illicit activity, with the 500 Euro note slated to be removed from circulation in 2018.<sup>8</sup> Gradual demonetizations of this variety, however, are often implemented for other reasons, including a change in the exchange rate regime. For example, the old notes of Eurozone member-states that remained in circulation at the outset of EMU were eventually demonetized in 2002. Similarly, the United States underwent demonetization in 1873, when the government mandated the removal of silver as legal tender once it adopted the classical gold standard.

Thus, demonetization historically has either occurred suddenly under “abnormal” political and economic circumstances, or gradually in “normal” times. In fact, the 2016 demonetization was the third such episode in India’s history.<sup>9</sup> The first demonetization took place in 1946, prior to India’s independence from Great Britain. The Rs 1,000, Rs 5,000, and Rs 10,000 notes were removed from circulation. A second, identical initiative took place in 1978, 24 years after the small notes had been reintroduced. In both cases, as today, the government cited removal of “black money” as a key reason for demonetization.<sup>10</sup> These past cases only affected a small proportion of the population, because so few people had the notes. Moreover, both past instances were gradual processes, involving announcements and subsequent legislative ordinances.

Several unique features set the 2016 Indian demonetization apart from its predecessors and cases in other countries. First, it was a rare episode of “sudden demonetization in normal circum-

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<sup>7</sup>Rahul Menon, “Demonetisation: Zimbabwe, Myanmar, and the USSR have been there, done that, and screwed themselves over,” *Quartz*, November 25, 2016.

<sup>8</sup>Jack Ewing, “Europe to Remove 500 Euro Bill, the ‘Bin Laden’ Bank Note Criminals Love,” *New York Times*, May 4, 2016.

<sup>9</sup>Ananya Bhattacharya, “A brief history of India pulling bank notes from circulation,” *Quartz*, November 8, 2016.

<sup>10</sup>“Currency recall version 3.0 also has same story to tell,” *The Hindu*, November 10, 2016.

stances” (Subramanian 2017). India was not experiencing any financial crisis, economic shock, or political upheaval typically associated with demonetization. Second, the 2016 Indian demonetization was implemented suddenly, in a previously unannounced speech by Prime Minister Modi, rather than through the adoption of administrative ordinances or a prolonged period of public planning and debate. Third, unlike the 1946 and 1978 episodes, this was also the first time demonetization affected a wide swath of the population, given the widespread use of the demonetized notes. Fourth, in stark contrast to most monetary or financial shocks—such as a large interest rate increase (e.g., the Volcker shock in the US in 1980–82) or a sudden exchange rate realignment (e.g., the Swiss franc revaluation of January 2015)—the 2016 demonetization did not substantially affect the aggregate money supply in India. In the immediate aftermath of Modi’s announcement, this was not known. The government did not know what share of demonetized notes would ultimately be deposited at banks, and it had only prepared 25% of the replacement notes in advance. Consequently, the days and weeks after November 8 saw large-scale cash shortages and runs on ATMs. Observers worried about severe impacts to the Indian economy, given that the primary medium of exchange had been destroyed. India is one of the most cash-dependent economies in the world: 80-90% of labor is in the informal sector, and 98% of transactions (68% of value) in India take place in cash (PricewaterhouseCoopers 2015; Subramanian 2017). By comparison, 55% of transactions in the US take place in cash (14% of value). Analysts therefore worried that economic activity, at both the micro- and macro-level, would be substantially and adversely affected by demonetization.

Finally, perhaps the most unique feature of the 2016 Indian demonetization is that it was a massive shock that can clearly be assigned to a party/government and its leader. In contrast to past shocks, such as the Great Depression, banking/financial crises, or sovereign defaults, the public could easily identify exactly who was responsible for the shock. Indeed, the Modi government actively took credit for demonetization, in contrast to most governments in times of economic shock, which actively seek to deflect blame and avoid taking responsibility for the effects of a monetary or financial upheaval. Combined with the 2017 state-level elections that followed directly

in the aftermath of the 2016 demonetization in India, this presents us with a unique opportunity to assess the political impact of demonetization, as well as the relationship between the economic effects of the shock and voter behavior.

## 2 Empirical strategy and data

We use a difference-in-difference strategy to estimate the economic and political effects of demonetization. We estimate the following equation:

$$Y_{it} = \alpha + \beta TREAT_{it} + \gamma POST_{it} + \delta TREAT * POST_{it} + \eta_i + \lambda_t + \varepsilon_{it} \quad (1)$$

Our outcomes variables,  $Y$ , are measures of investment activity and, in a separate analysis, the % of the vote received by the BJP. The BJP currently governs India, and implemented the demonetization policy.  $TREAT$  is a predetermined treatment variable that will have induced variation in the degree to which districts experienced negative economic shocks due to demonetization. In our main specifications, this is the number of bank branches. Access to banks varies widely across India, with rural areas broadly having less access to credit institutions than urban ones. Districts with more bank branches will have been less affected by the shock.  $POST$  is a dummy that takes on the value 1 after demonetization.  $\delta$  is the coefficient of interest. This identifies the effect of demonetization as  $TREAT$  varies. The regressions include district fixed effects ( $\eta_i$ ) and year fixed effects ( $\lambda_t$ ). To be conservative, standard errors are clustered at the state level.

Although our treatment variable is the predetermined number of bank branches, omitted factors such as the presence of the middle class (who are thought to be BJP supporters and consumers of financial services) could affect both support for the BJP and bank penetration. To address this possibility, we build on (Kochar 2011) and leverage a policy experiment that directed state-owned banks to expand their branch networks in underserved districts. We instrument for our treatment variable—bank branches—with indicators for whether districts were subject to the “branch licensing policies.”



From 1979 to 1990, the Indian government adopted a series of policies to address the problem of “unbanked” areas. As part of the Sixth Five Year Plan (1980–81 to 1984–85), Indira Gandhi’s Congress government made poverty alleviation its central objective (Kochar 2011, 255). Along with targeted, subsidized credit to the poor, the government sought to create new rural banks to increase access to credit in India’s poorest rural areas. Between 1979 and 1990, the Indian government implemented three Branch Licensing Policy (BLP) programs (January 1979 to December 1981; April 1982 to March 1985; and April 1985 to March 1990) (Kochar 2011, 255). Under the 1979 law, rural areas with more than 20,000 people per bank branch received additional branches; under the 1982 and 1985 programs, the threshold for new branches was reduced to 17,000 people per branch (Kochar 2011, 256).

The BLPs dramatically increased the number of bank branches in India’s districts between 1979 and 1990. From 1979 to 1990, the government authorized the opening of new bank branches in approximately 30,000 “unbanked” rural locations without previous access to credit (Burgess and Pande 2005). Consider Figure 1 below, which plots the three kernel densities of the rural population per bank across India’s districts in 1979, 1982 and 1985. At the end of the period, banks in many more districts served fewer customers. But do the BLPs explain our variation in banks today, i.e., our *TREAT* variable?

To formally investigate the effects of the branch licensing policies, we model the number of banks in 2009 across the 75 districts in our data as a function of dummies for the 1979 and 1982 BLPs, the rural population per bank in 1979 and 1982 (per above, whether this figure was above a time-varying threshold determined whether districts were subject to the BLPs), and state fixed effects. Regression 1 of Appendix Table 1 suggests that at the margin, exposure to the 1979 BLP is associated with 48% more banks today. Exposure to the 1979 and 1982 BLPs is associated with 18% more banks.<sup>11</sup> This “first stage” regression therefore suggests that the BLP dummies might be strong instruments for *TREAT*. The BLP dummies make for good instruments since they are positively correlated with the number bank branches today, and since they are likely exogenous

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<sup>11</sup>The negative coefficient on the 1982 BLP is not of a concern since no district was just exposed to the 1982 BLP (29 districts were exposed to neither program; 6 were exposed to the 1979 program only; 40 were exposed to both).

to the current BJP vote share (the exclusion restriction). They were necessarily uncorrelated with BJP vote shares at the time of the BLPs since the BJP first contested parliamentary elections in 1984.

Our empirical analysis examines the effects of demonetization on investment and the electoral performance of the BJP. The fine grained economic data that we use are for project announcements, and are from the Center for Monitoring the Indian Economy (CMIE) CapEx database, which tracks investments in the economy. The election data are from [Bhavnani \(2017\)](#), and are for elections in the Indian states of Uttar Pradesh, Uttarakhand, Punjab, Manipur and Goa. These states, which have a population of 241 million people, or 20% of India’s population, had elections in the immediate aftermath of demonetization.

We coded data on bank branches from hard copies of the “Basic Statistical Returns of the Scheduled Commercial Banks in India,” a publication of the Reserve Bank of India.<sup>12</sup> We use these data to construct our main treatment variable. We calculate whether districts were subject to the 1979 and 1982 BLPs using data on bank branches, and on rural populations, from the 1981 Census of India. Data on alternative “treatment” variables—the proportion of the population in rural areas and involved in agriculture—are from the 2011 Census of India. We consistently use the 1981 administrative district as our unit of analysis since these districts were subject to the BLPs.

### **3 The economic effects of demonetization**

While the aggregate economic effects of demonetization have been negative, we focus on explaining subnational variation in the effects of demonetization. As mentioned previously, we argue that the negative economic impact of demonetization should be most apparent in relatively “unbanked” areas. Since the banking system was the channel through which the contractionary effects of demonetization were to be countered (new notes and credit were to be dispensed by banks), the degree to which the policy disrupted economic activity should depend on bank penetration. Our

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<sup>12</sup>In earlier years, this publication was called “Banking Statistics: Basic Statistical Returns.”

expectation is that areas where a larger share of individuals and businesses depend on cash—and where exchanging notes is more difficult because of the relative scarcity of banks—should have experienced the largest decline in economic activity in the wake of demonetization. We turn to testing this next, using the difference-in-difference and instrumental variables difference-in-difference strategies detailed above.

We start by examining the effects of demonetization on the number of projects that were announced in each district-month before and after demonetization. Our data start in June 2014, when the BJP was swept to power in the country's national elections, and end in June 2017, eight months after demonetization. Regression 1 of Table 2 models the log number of announced projects as a function of a dummy for demonetization, controlling for month fixed effects, state fixed effects and state-month trends. This suggests that demonetization reduced the number of projects announced by 12%.

In regression 2, we employ the difference-in-difference specification described by equation 1 to examine the effects of demonetization on economic activity as the number of bank branches vary. Regression 3 substitutes state with district fixed effects. In regression 4, we switch to our preferred instrumental variables difference-in-difference specification. Note that the  $F$ -statistic for the first stage regression that predicts banks is well-above 10, which reconfirms that the branch licensing policies described do indeed explain a substantial degree of the variation in bank branches today. The last, preferred specification suggests that although demonetization caused a 12% drop in the number of projects announced, a standard deviation increase in banks would attenuate this effect to 8%. In Figure 2, we plot the marginal effects of demonetization as the number of bank branches increase. This plot confirms that although demonetization sharply decreased project announcements, it did so to a lesser degree in districts with banks. Our results are robust to using the value rather than number of projects announced as the dependent variable (Appendix Table 4).

In this section, we documented how the negative economic shock due to demonetization varied across the country as the degree to which districts are banked varies. Our purpose was not to estimate the total cost of demonetization (as mentioned previously, this would require us to estimate

a different counterfactual), but simply to demonstrate that the economic cost of demonetization was indeed attenuated in districts with more banks. We next examine subnational variation in the political effects of demonetization as its economic consequences vary.

## 4 The political effects of demonetization

We start our analysis by describing the evolution of the BJP's vote over the past three elections in the five states that are the focus of our analysis.<sup>13</sup> In the state elections of 2012, the BJP won an average of 15.4% of the vote. The party more than doubled its vote share to 36.3% in the national election of 2014, which allowed it to form the central government in New Delhi. In the state elections of 2017, the BJP's vote share declined only slightly, averaging 34.7% (the difference in the party's vote share between 2014 and 2017 was statistically insignificant). We confirm this using multivariate analysis, where we model the percentage of the vote received by the BJP as a function of state and year fixed effects. In regression 1 of Table 3, the coefficient on the post-demonetization is relatively small, negative and is statistically insignificant.<sup>14</sup>

We next examine how the effects of demonetization on the % of the BJP vote varies with the degree to which districts are banked. Figure 3 graphically describes this analysis, displaying how the BJP vote share and bank branches vary in the 2012 state elections, the 2014 national election, and the 2017 state elections. While the BJP vote share is increasing in bank branches in 2009 and 2014, this is no longer the case in 2017. To put it differently, although districts with few banks support the BJP less in 2012 and 2014, they support the BJP just as much as did other districts in 2017. This suggests that the districts that will have been most severely affected by demonetization, that is, those with the fewest bank branches, altered their behavior.

To formally examine how the effects of demonetization on the % of the BJP vote varies with the degree to which districts are banked, we implement the difference-in-difference estimator described previously and in equation 1. In regression 2 of Table 3, we see that although the % of

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<sup>13</sup>We do not include data from elections prior to this since constituency boundaries changed.

<sup>14</sup>In this and subsequent regressions, the omitted year category is 2014. The regressions therefore compare the BJP's electoral performance in 2017 with its performance in 2014.

the BJP vote is usually increasing in bank branches this is not the case after demonetization. This result is practically unchanged in Regression 2, which substitutes state with district fixed effects. Figure 4 plots the marginal effect of demonetization on the BJP vote share as bank branches vary, showing that only districts with the most bank branches per capita penalized the BJP for demonetization. Since banks will have attenuated the deleterious economic effects of demonetization, this suggests that the hardest hit districts continued to support the BJP, while districts that were less hard hit somewhat decreased their support for the party.

The difference-in-difference statistically identifies the effects of demonetization in districts with varying bank branches assuming that BJP vote shares were evolving similarly across districts with varying numbers of branches prior to demonetization. In order to test this assumption, and since we have two pre-treatment elections (in 2012 and 2014), we conduct a placebo test, to see if banks were correlated with the change in BJP's vote share between 2012 and 2014. They are not (see Regression 1 of Appendix Table 5).

Recall that it remains possible that omitted, plausibly unobservable variables, such as the presence of a middle class, might explain both a district's support for the BJP and the number of bank branches. To address this potential for endogeneity, we instrument for banks using dummies for whether districts were subject to the "branch licensing policies" of 1979 and 1982. As described and shown previously (see Figure 1 and Appendix Table 1), these dummies make good instruments since they are significantly correlated with banks, and since they are likely orthogonal to current BJP support. Regression 4 of Table 3 presents the results of the 2SLS difference-in-difference analysis, and confirms that demonetization increased the % of the vote received by the BJP in underbanked districts. The first stage  $F$ -statistic is well-above 10, which is the rule of the thumb for a strong instrument. Although the BJP vote percentage is increasing in banks, this is less the case after demonetization.

So far, we have shown that although voters generally penalized the BJP after demonetization, they failed to do so in particularly underbanked districts. In the prior section, we showed that underbanked districts were hit hardest economically by demonetization. Therefore, the BJP did

particularly well in hard hit districts. To provide additional support to our interpretation, we show we get similar results if we proxy for hard-hit districts using measures other than bank branches.

To examine whether the hardest-hit districts did indeed fail to penalize the BJP, we examine whether our results are robust to using two alternative predetermined measures—instead of bank branches—for districts that are likely to have been hard hit by demonetization. We employ the proportion of the population that resides in rural areas, and the proportion of the population employed in agriculture as alternative treatment variables. Our reasoning is that since rural residents and those in agriculture are more likely to be cash-dependent, they are likely to be hit harder by demonetization. Media accounts and new research quantifying the negative impact of demonetization on agricultural prices and trade (Aggarwal and Narayanan 2017) corroborate these claims. In Appendix Table 6 we present the results of these alternative specifications; the marginal effects plots associated with them are Appendix Figures 5 and 6. Consistent with our account, districts that are more rural and have more agriculturalists, that is, those that are likely to have been more negatively impacted by demonetization, fail to punish the BJP for demonetization.

## 5 Conclusion

How do economic shocks affect voter behavior? To what extent are voters engaging in retrospective economic voting in the wake of shocks, as opposed to voting based on psychological or non-material factors? We explore these important questions in the context of India’s sudden demonetization in 2016, and the subsequent elections in five Indian states in 2017. Our analysis suggests that demonetization was an economic disaster for the country but was politically beneficial for the BJP. Demonetization had a sharp and immediate negative impact on the Indian economy, at both the micro- and macroeconomic level. As our analysis shows, this negative impact was unevenly distributed across the country. Using a difference-in-differences approach and policy-induced exogenous variation in bank branches, we show that the economic impact of demonetization was felt most acutely in relatively “unbanked” rural areas, where households and businesses are most dependent on cash. We also show that the BJP was not penalized in districts

with few bank branches.

These results provide important insights into the determinants of voters' behavior in the wake of major economic shocks. On the one hand, the finding that voters in more heavily "banked" districts reduced their support for the BJP in the wake of demonetization suggests that a substantial portion of the population votes in accordance with the logic of economic voting. On the other hand, the finding that voters in "underbanked" districts—who bore most heavily the brunt of the negative economic impact of demonetization—failed to decrease their support for the BJP in the 2017 state elections suggests that another large portion of the population was motivated primarily by other factors.

Consistent with these findings, survey data from four of the five Indian states that we have studied suggest that the majority of people expressed positive rather than negative views, well after it had become clear that demonetization was causing an economic contraction.<sup>15</sup> For Uttar Pradesh, 63.5 percent of respondents that had an opinion agreed with the following statement: "Even though people faced trouble on account of demonetization in the last few months, it will benefit the nation and the people in the coming years," while 36.5 percent agreed with the statement, "Not only have people faced trouble on account of demonetization, the nation too has suffered losses." The equivalent figure for Uttarakhand was 72 percent, for Punjab 49 percent, and for Goa 59 percent. These results further suggest that a substantial share of voters supported demonetization for other reasons, in spite of its negative economic effects.

Our empirical strategy here does not allow us to pinpoint the precise factors underlying voters' political support for the BJP in districts hit hardest by the negative economic shock of demonetization. We plan to explore these in future research, where an survey experimental approach may enable us to directly test whether framing effects (one of many possible explanations for the effects of demonetization) shape voters' tolerance for material losses. This strategy would also allow us to address the ecological inference problem that stems from our use of aggregate, rather than individual-level, voting data. It is certainly possible that the Modi government's framing of de-

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<sup>15</sup>Data are from the ABP News–CSDS–Lokniti–postpoll surveys for Goa, Punjab, Uttarakhand and Uttar Pradesh. These surveys were designed to be representative at the state level, and were carried out after the state elections in February–March 2017, but before the election results were announced.

monetization around issues of fighting corruption, tax evasion, terrorism, and moving the country toward a more modern, formal economy resonated strongly with rural voters. Absent such framing and politicization, we might have observed straightforward economic voting in “unbanked” districts, leading to a loss of support by the BJP. In the event, the Modi government was able to impose substantial economic pain without incurring much of a political cost—and it did so in the total absence of an immediate economic crisis or outside pressure from actors such as private international creditors or the international financial institutions.



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Figure 1: Kernel density plots for the rural population per bank across India's districts in 1979, 1982 and 1985

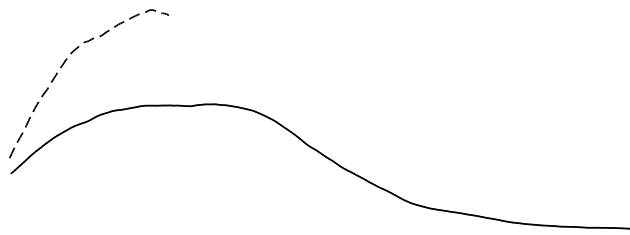


Table 2: The effect of demonetization on project announcements as the number of bank branches varies

	OLS 1	OLS 2	OLS 3	2SLS 4
After demonetization	-0.121*** (0.0127)	-0.122*** (0.00928)	-0.123*** (0.0101)	-0.121*** (0.0135)
Ln bank branches (standardized)		0.144** (0.0255)		
Ln bank branches (standardized) x After demonetization		-0.0171 (0.0202)	-0.0165 (0.0205)	0.0370*** (0.00940)
State fixed effects	Y	Y		
District fixed effects			Y	Y
State trends	Y	Y	Y	Y
Observations	1881	1881	1881	1881
Adjusted <i>R</i> -squared	0.09	0.16	0.29	0.28
First stage <i>F</i> -stat. for interaction term				69

Notes: Standard errors clustered by state. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . See text for details.

Figure 2: The effect of demonetization on project announcements as the number of bank branches varies

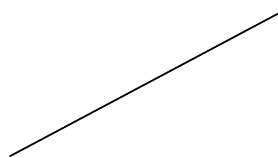


Figure 3: The relationship between the % of the BJP vote and bank branches, before and after demonetization

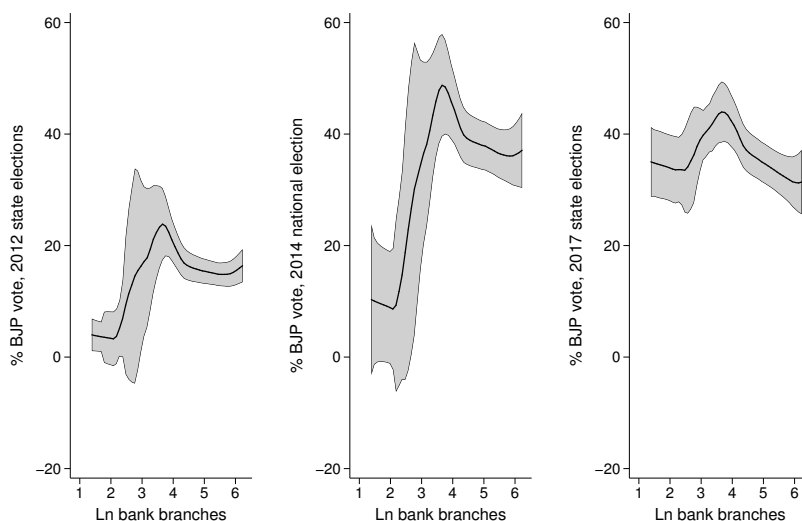
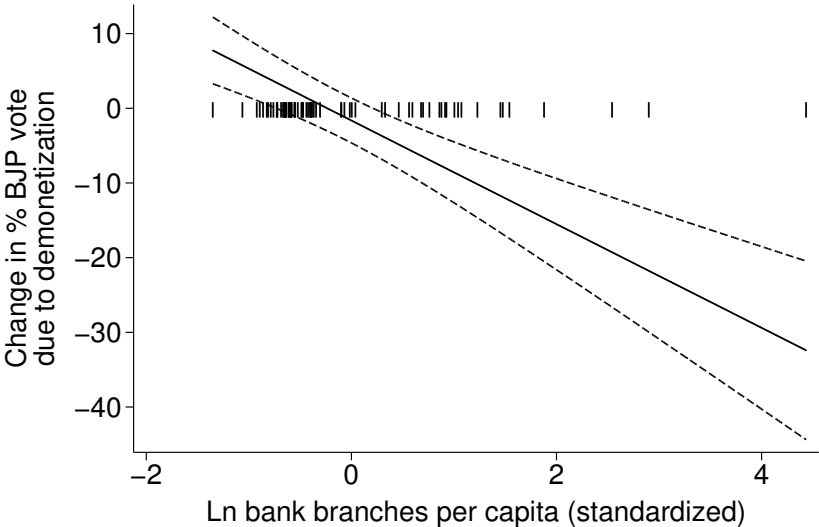


Table 3: The effect of demonetization on the % of the BJP vote as the number of bank branches varies

	OLS 1	OLS 2	OLS 3	2SLS 4
After demonetization	-1.631 (3.096)	-1.631 (4.044)	-1.631 (1.536)	-1.631 (1.295)
Ln bank branches per capita (standardized)		8.661** (2.649)		
Ln bank branches per capita (standardized) x After demonetization		-6.941** (1.463)	-6.941*** (1.311)	-8.747*** (1.371)
State fixed effects	Y	Y		
District fixed effects			Y	Y
Year fixed effects	Y	Y	Y	Y
Observations	225	225	225	225
Adjusted <i>R</i> -squared	0.66	0.74	0.80	0.80
First stage <i>F</i> -stat. for interaction term				14

*Notes:* Observations are for 75 districts for three election years. The dependent variable is the % of the BJP vote. Standard errors are clustered by state. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . See text for details.

Figure 4: The effect of demonetization on the % of the BJP vote as the number of bank branches varies



*Notes:* The solid line is the predicted effect of demonetization on the % of the BJP vote as the number of bank branches varies, calculated using the coefficients in regression 3 of Table 3. Dashed lines are for the 95% confidence intervals. The rug plot depicts the distribution of the standardized value of ln number of bank branches per capita.

## Online Appendix



Table 4: The effects of demonetization on the value of project announcements as the number of bank branches varies

	1
Ln bank branches	0.137***
(standardized) x After demonetization	(0.0391)
After demonetization	-0.533***
	(0.107)
District fixed effects	Y
State trends	Y
Observations	1881
Adjusted <i>R</i> -squared	0.18
First stage <i>F</i> -stat. for interaction term	69

*Notes:* The dependent variable is the log rupee value of project announcements. Standard errors clustered by state. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . See text for details.

Table 5: The effect of demonetization on the % of the BJP vote as the number of bank branches varies, placebo test

	1
After demonetization	-1.631
	(3.613)
Ln bank branches per capita	10.88**
(standardized)	(1.909)
Ln bank branches per capita	-9.156**
(standardized) x After demonetization	(2.075)
Ln bank branches per capita	-4.429
(standardized) x Pre-treatment placebo	(3.955)
District fixed effects	Y
Year fixed effects	Y
Observations	225
Adjusted <i>R</i> -squared	0.75

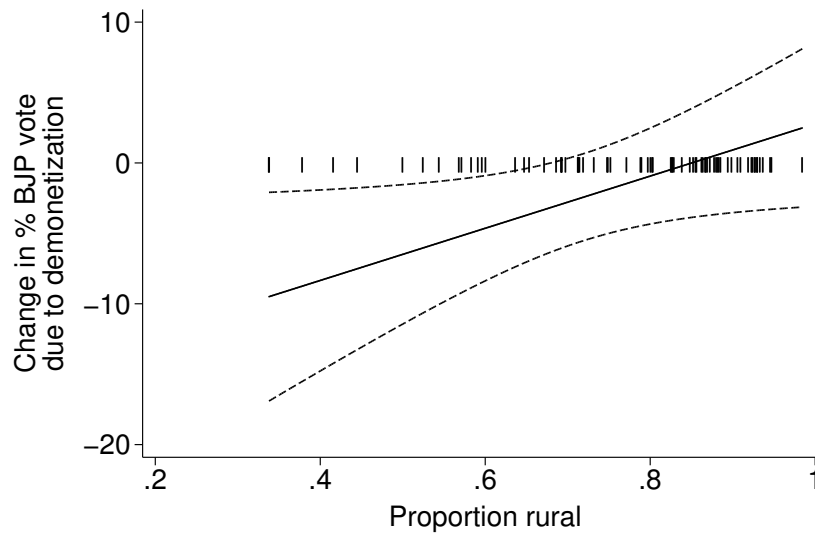
*Notes:* Standard errors clustered by state. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . See text for details.

Table 6: The effect of demonetization on the % of the BJP vote as proportion of the population that is rural and agricultural varies

	1	2
After demonetization	-15.75** (6.671)	-15.31*** (4.316)
Proportion rural x After demonetization	18.53** (9.018)	
Proportion employed in agriculture x After demonetization		24.21*** (7.281)
Year fixed effects	Y	Y
Observations	225	225
Adjusted R-squared	0.76	0.77

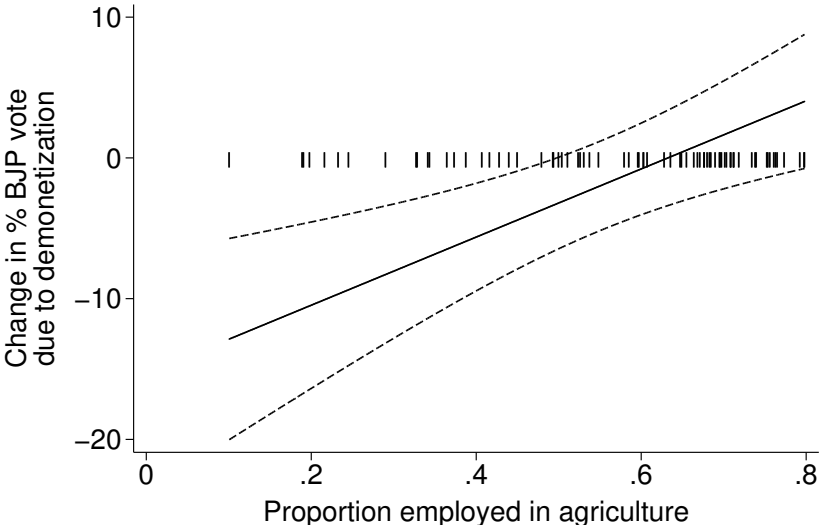
Notes: Standard errors clustered by district. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . See text for details.

Figure 5: The effect of demonetization on the % of the BJP vote as the proportion of the population that is rural varies



Notes: The solid line is the predicted effect of demonetization on the % of the BJP vote as the proportion of the population that is rural varies, calculated using the coefficients in regression 1, Table 6. Dashed lines are for the 95% confidence intervals. The rug plot depicts the distribution of the proportion of rural residents.

Figure 6: The effect of demonetization on the % of the BJP vote as the proportion of people employed in agriculture varies



*Notes:* The solid line is the predicted effect of demonetization on the % of the BJP vote as the proportion of people employed in agriculture varies, calculated using the coefficients in regression 2, Table 6. Dashed lines are for the 95% confidence intervals. The rug plot depicts the distribution of the proportion of people employed in agriculture.