

**The Decision to Privatize:
Finance, Politics, and Patronage***

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Abstract

We investigate the influence of financial and political factors on the decision to privatize government-owned firms using firm-level data from India. Based on data from all elections held since the start of the privatization process, we find that the government is reluctant to privatize firms located in electoral constituencies where the governing party faces more political competition from opposition parties. This result is robust to political ideology; industry and time effects; and constituency-level differences in income, literacy, urbanization, and growth opportunities. As an indication that political patronage is important, no government-owned firm located in the home state of the politician in charge of that firm is ever privatized. Using political variables as an instrument for the endogenous privatization decision, we find that privatization has a positive and significant impact on firm performance.

Key Words: Government Ownership, Political Economy, Emerging Markets, Economic Reform, State-Owned Enterprise, Interest Groups, IPO.

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1. Introduction

The sale of government-owned firms to private owners has yielded more than \$1 trillion in revenues for governments, has improved the performance of government-owned firms, and facilitated the development of financial markets.¹ Yet, governments still own a substantial number of firms across the world (Megginson (2005)). Given the documented benefits from privatization, why are there widespread delays in the process, with governments worldwide choosing to sell some firms but not others to private owners?

To answer this question we investigate the role of firm-specific financial and political factors in the selection of firms for privatization. Following the literature on the decision to go public by private firms, we identify financial characteristics of firms that are likely to influence the decision to privatize.² However, the decision to sell government-owned firms is likely to depend not only on financial considerations, but also on political costs and benefits. The benefits of privatization, such as revenues from sale, financial market development, and efficiency gains, tend to be dispersed across the population, while the costs of privatization, such as layoffs of surplus workers and the loss of private benefits of control for politicians, tend to be geographically concentrated among a small group. To understand how these concentrated costs can slow down the process of privatization, we investigate the role of political competition and patronage in the privatization decision.³

Since the adverse effects of privatization are likely to be concentrated in the region where a firm operates, the governing party may lose votes in that region because of opposition from interest groups that are adversely affected, such as the local employees of government-owned firms. The privatization of government-owned firms may also be perceived negatively by the public as an inequitable transfer of publicly-owned assets to private owners. Since any decrease in voter support is likely to matter more for the governing party if it is in a competitive race with opposition parties in a region, we expect the government to be least likely to privatize firms in regions where the governing and opposition parties have comparable strength. Instead, we expect the government to privatize firms that are located in regions where the governing party is strong enough to withstand the effects of a political backlash, or in regions where there is little hope of victory.

¹ (i) For recent surveys of the privatization literature see Megginson and Netter (2001) and Megginson (2005). (ii) La Porta and Lopez-de-Silanes (1999) among others find that privatization leads to an improvement in the efficiency of government-owned firms, and Gupta (2005) shows that even partial privatization leads to significant performance improvements in Indian government-owned firms. (iii) Megginson et al. (2004) argue that share issue privatizations facilitate the development of capital markets.

² Pagano, Panetta, and Zingales (1998) investigate the determinants of the decision to go public by private firms. For a recent survey of the IPO literature see Ritter and Welch (2002).

³ Describing how the political costs of privatization can lead to delays one Indian Prime Minister noted, "If I do it [privatization] immediately, I get into trouble. I get trouble from the workers. I get trouble from the political parties. I get trouble from the general public," ("Steadily doing it his own way – P. V. Narasimha Rao", *Financial Times*, 11 March, 1994).

To study the financial and political factors that are likely to affect the decision to privatize we need firm-level data on privatized firms and on the government-owned firms that are never privatized. In many countries data on the latter companies are not available. We use a rare firm-level database from India that includes both privatized firms and those that remain fully government-owned. The data covers over 92% of the firms owned by the federal government for the years 1990-2004.

To investigate the role of politics we collect electoral data for 543 electoral districts on all federal elections held since the start of the privatization program in 1991. We then identify the location of the main operations of each firm and use geographic mapping techniques to match them to electoral districts. Specifically, we construct political measures based on electoral data from districts within different radii around the location of the main operations of the firm.

Using India as the empirical context for studying the politics of financial market reforms has several advantages. First, it is a multi-party democracy with robust political competition among its political parties. For example, the ruling party in the federal government was voted out of power in four out of five elections held between 1991 and 2004. Second, since this is a single-country study we can control for institutional differences across countries such as legal systems and colonial legacies. Third, by using India as the empirical context we can exploit regional differences across the different Indian electoral districts. Most Indian states are more populous than many countries, and there is significant variation in voter support for the different political parties across electoral districts.

The results suggest that, similar to the IPO decision of private firms, larger firms are more likely to be privatized early. However, unlike private firm IPOs, political factors play an important role in privatization. We find that privatization is significantly delayed if the firm is located in a constituency where the opposition party and its allies have won a large proportion of votes in the federal parliamentary elections. Privatization is also significantly delayed if a firm is located in regions where the governing and opposition party alliances are in a close race and have won a similar share of votes. These results suggest that the government acts to minimize the effects of a political backlash by delaying privatization in districts where it faces more competition from opposition parties. Thus, the dispersed benefits and concentrated costs of privatization appear to significantly influence the pattern of firm sales.⁴

We check the robustness of our results in several ways. First, the specifications control for firm-level characteristics such as sales, profitability, and wages, as well as year and industry effects. Second, we show that these results are robust to using alternative distances to construct the political measures, including districts within 0, 5, 10, 25, 50, and 100 kilometer distances around the main operations of the

⁴ The influence of electoral politics on the privatization process in India has been described thus: “A way to measure the popularity of the reforms can be done through the elections. [Prime Minister] Rao...avoided making reforms that might have been politically costly in the short term, such as laying off public sector workers, privatizing or closing down inefficient factories,” (Tharoor (1997), page 174).

firms. Third, we show that our results are not a proxy for regional differences in income, education, and growth; are robust to excluding small states; and are robust to the political influence of the state legislature in the state where the firm is located. Fourth, the political results do not simply reflect the ideological positions of the political parties since there is considerable heterogeneity in the ideology of the different governments elected between 1991 and 2004. For example, the privatization program was initiated by the center-left Congress Party and continued by the right-wing Bharatiya Janata Party. Also, political competition continues to matter when we control for the strength of opposition leftist parties in a constituency.

The literature shows that privatization has a positive impact on firm performance (Megginson and Netter (2001)), but the majority of studies do not account for endogeneity in the privatization decision. Using the difference in the vote shares received by the governing and opposition parties in a region as an instrumental variable for the decision to sell a firm located in that region, we show that correcting for endogeneity, privatized firms experience a significant increase in sales, assets, investments, R&D expenditures, profitability, and, productivity compared to firms that remain fully government-owned.

Since politicians obtain private benefits from controlling government-owned firms (Shleifer and Vishny (1994), Boycko, Shleifer, and Vishny (1996), and Dinç (2005)), we also investigate the role of political patronage in the privatization decision. For example, politicians may influence the hiring and purchase decisions of government-owned firms so that they favor political supporters. Retaining control over a firm is likely to be a greater priority for a politician if the firm is located in the politician's home state. In other words, catering to local supporters to increase the chances of being re-elected is likely to be more important in the politician's home state. We find that no firm is ever privatized if it is located in the state from which the minister with jurisdiction over that firm is elected.

There is a recent empirical literature on the political economy of financial market reforms.⁵ In the privatization context, Jones et al. (1999) show that governments adopt terms of sale that are consistent with political objectives; Clarke and Cull (2002) find that the political affiliation of the government does not have a robust impact on the probability of bank privatization in Argentina; Megginson, et al. (2004) examine the choice of privatizing firms in public versus private capital markets, and find that large and profitable firms are more likely to be sold in public markets; Bortolotti and Pinotti (2006) show that privatization is delayed in democracies with proportional electoral systems; and, Dastidar, Fisman, and Khanna (2007) show that there is policy irreversibility in the privatization process in India. In the related context of banking sector policy, Kroszner and Strahan (1999) find that interest groups may influence the

⁵ The question of how a government maximizing privatization proceeds will sequence the sale of firms is investigated theoretically in an auction model by Chakraborty, Gupta, and Harbaugh (2006), and empirically using data on Czech firms by Gupta, Ham, and Svejnar (2007).

pattern of banking sector deregulation across the different U.S. states; Sapienza (2004) finds that government-owned banks charge lower interest rates in areas where the government is politically strong; and, Brown and Dinç (2005) show that governments are less likely to take over failing banks prior to an election.

Our paper contributes to the political economy of finance literature in several ways. First, the literature considers how differences in political institutions are correlated with patterns in privatization, such as methods of sale. Our focus is different: we use data on both privatized firms and those that remain government-owned to study how firms are selected for privatization in a competitive democracy. Second, the political economy of finance literature is implicitly motivated by the incentives of politicians. By investigating the role of political strength and competition we provide a direct test of this underlying assumption and show how politicians' incentives shape financial market policy. Third, we identify and connect politicians to the firms they control so as to provide the first test of how political patronage affects privatization. Fourth, the literature studying the effects of privatization often assumes that firms are selected randomly for privatization, but our results indicate that selection for privatization is not a random decision. We show that our political measures can be used as instruments to correct for this endogeneity. These political measures are also likely to be useful for evaluating the impact of other financial reforms that are endogenously implemented, such as banking sector deregulation and foreign investment liberalization.

The paper is organized as follows: In section 2 we describe the Indian political system and the privatization program, in section 3 we describe hypotheses based on the financial and political factors likely to affect the privatization decision, and in section 4 we describe the data. Section 5 presents the regression results, section 6 describes robustness checks, in section 7 we discuss the impact of privatization, and in section 8 we conclude.

2. Background on Privatization and the Political System in India

2.1 *Government-owned Firms*

In the post-independence era, government ownership of firms in India was justified by concerns that the private sector would not undertake projects requiring large investments with long gestation periods. In the late 1960s there was a period of rapid nationalization of firms in all sectors, so that by the mid-seventies the public sector accounted for one-fifth of GDP (Goyal (2000)). By 1991, gross capital formation in federal government-owned firms accounted for 40% of total gross capital formation in the economy (Ministry of Finance (1996)).

We focus on firms owned by the federal government, which account for about 85% of the total assets of all government-owned companies (Gupta (2005)). These firms include departmental firms that

are run directly by government ministries, such as the railways, the postal service, telecommunications, and power, as well as firms that have separate boards of directors. Government-owned firms are typically overstaffed and their workers often earn more than workers in privately-owned firms. For example, in 2003 over 10% of workers in the organized sector were employed in federal government-owned firms (Ministry of Finance (2004))⁶, and they earned more than twice as much as workers in the private organized sector (Panagariya (2007)), although private firms may be less capital-intensive. This large wage difference suggests why workers in government-owned firms vigorously oppose privatization. Over half the firms owned by the federal government are loss-making, and the majority of these companies perform far worse in comparison to private firms in the same industry (Department of Disinvestment (2001)).⁷ For example, between 1990 and 1998 the ratio of profits after tax to sales averaged -4.4% for government-owned manufacturing firms, and 6.7% among private manufacturing firms (Department of Disinvestment (2001)).

2.2 *Political System*

The most populous democracy in the world, India has a British-style parliamentary system where representatives are directly elected to the *Lok Sabha*, the lower house in the federal government. Unlike the U.S. Senate, the upper house of the national government, the *Rajya Sabha*, does not have legislative powers and its representatives are not directly elected by citizens. Representatives to the *Lok Sabha* are elected from 543 single-member districts distributed across 35 states, and the political party or alliance of parties that wins the majority of districts forms the national government, headed by the Prime Minister and a cabinet of ministers. Statewise distribution of seats in the *Lok Sabha* depends on the population in each state. There has been no redistricting in India since 1971 because of a constitutional amendment enacted in 1976 that postponed redistricting until after the 2000 census, and the electoral districts remain the same throughout our sample period (Election Commission of India (2007)). We include electoral data on all five elections to the federal government held since the start of the privatization program in 1991, namely the elections held in 1991, 1996, 1998, 1999, and 2004. The next elections are scheduled to be held in April-May 2009.

On average, about 450 political parties participate in the elections. It is common for national political parties to establish alliances with each other as well as smaller regional parties before the elections in order to increase their chances of forming a majority government. A political party may

⁶ Total employment in the organized sector in 2003 was 27 million workers, about 7%-8% of the total workforce (Ministry of Finance (2004)). The organized sector refers to registered companies that are legally required to submit financial statements.

⁷ While government-owned firms may pursue objectives other than profit maximization, the fact that so many are loss-making suggests that this is not the most efficient use of scarce capital.

support another party's candidate in the districts where the latter party is strong. These candidates, in turn, support the national parties in parliament when they are elected and are often represented in the government if the alliance wins the election. Hence, it is more appropriate to study the electoral performance of political alliances rather than that of individual parties.

Following India's independence from the United Kingdom in 1947, the main political party was the pro-independence, ideologically center-left Congress Party. This party was in power at the federal level for most of the years following independence. The economic reforms of 1991 were initiated by the Congress Party-led government, which along with its allies won a majority of the seats in the *Lok Sabha* or the federal lower house of parliament in the 1991 elections and formed the government. The Bharatiya Janata Party (BJP) obtained the second largest number of seats in the *Lok Sabha*, and is identified as the main opposition party in our analysis during fiscal years 1991-1995.

In 1996, the BJP formed a government that lasted in power just 13 days, and was followed by a coalition government led by the center-left Janata Dal party with the outside support of the Congress Party. The BJP and its allies were the main opposition party coalition during this period. Following the Janata Dal's collapse, elections were held again in 1998 returning the BJP and its allies to power. The Congress Party and allies won the second largest number of seats in 1998 making them the main opposition party alliance. However, the BJP government collapsed the following year and elections were held again in 1999. A new coalition led by the BJP gained a majority to form the government in 1999, which remained in power until the 2004 elections. The Congress Party and its allies were the main opposition party alliance during this period. In the 2004 elections, the Congress Party and allies obtained a majority and formed the government. The next elections are being held in 2009. Note the considerable heterogeneity in the political ideology of the different governments elected between 1991 and 2004. Both the center-left Congress Party and the conservative BJP privatized firms during this period.

2.3 Privatization Process

In response to a balance of payments crisis in 1991, India undertook sweeping economic reforms that included deregulation and privatization. Out of 280 non-financial firms owned by the federal government, 50 firms were privatized between fiscal years 1991 and 2006.⁸ The list of firms to be privatized was decided at the Cabinet level and every government produced their own list. The privatization program was initiated by the Congress government in 1991, and after a brief hiatus was continued by the BJP government when it came to office in 1999. Below we describe the official policies and actual progress made by these governments.

⁸ Fiscal year t starts in April of calendar year t and runs through March of calendar year $t+1$.

First Phase (1991-1996): The official policy of the Congress government called for a reduction in government ownership in most firms in non-strategic industries. In particular, the “Committee on Disinvestment of Shares in Public Sector Units” recommended in 1993 that government ownership should be reduced to 26%, the minimum equity holding necessary for certain voting powers, in most non-strategic industries (Department of Disinvestment (2007)). However, the unofficial targets were considerably lower. For example, in 1991, the Finance Minister said that the government would privatize only up to 20% of equity in some firms to provide market discipline and raise money for the treasury (Department of Disinvestment (2007)).

The Congress government undertook partial privatizations where it sold minority equity stakes in 40 firms in capital markets, without transferring management control.⁹ The sale methods included auctions and public offerings in domestic markets. While some of these firms sold equity multiple times, we restrict our analysis to the first sale to avoid the endogeneity that may arise if past equity sales affect the probability of subsequent sales. Throughout we define privatization as the first sale of equity in a government-owned firm to private owners.

Like many countries around the world (Jones, et al. (1999), LaPorta, Lopez de Silanes, and Shleifer (2002), and Boubakri, Cosset, and Guedhami (2005)), the majority of the privatizations undertaken by successive Indian governments involve the sale of minority equity stakes in capital markets. Although the government continued to hold a majority of shares, these firms became subject to market monitoring and the disclosure requirements of being listed.¹⁰ Moreover, partially privatized firms are also more likely to sell majority stakes subsequently (Gupta (2005)). Hence, politicians have an incentive to resist partial privatizations both because increased monitoring reduces patronage opportunities, and because these firms are candidates for the eventual sale of majority stakes and the transfer of management control to private owners.

Acknowledging the role of electoral politics the current Congress government Prime Minister said, “If you face immediate political problems - elections in four states - it is hard to push ahead... We had to worry about the prospects of unemployment if public sector units faced closure,” (“India's reform architect looks on from the sidelines,” *Asia Times*, 8 April, 1997).

⁹ In the case of share-issue privatizations it may be that better informed local investors gain more so that the benefits from privatization, like the costs, are also geographically concentrated. However, this should reduce opposition in the region where the firm is privatized, which would bias us against finding that the political variables matter.

¹⁰ Gupta (2005) shows that partially privatized firms experience significant improvements in performance relative to firms that remain fully government-owned in India, and the improvements are positively related to the amount of equity sold. In contrast, in a “before-after” analysis of partially privatized Chinese firms, Sun and Tong (2003) find that returns on sales decrease following privatization. However, using a different sample of privatized firms in China, Song and Yao (2004) find that earnings increase following partial privatization.

Despite officially being in favor of reforms, the main opposition BJP party frequently attacked the Congress government's privatization plans: "India's largest opposition party [the BJP] said on Thursday that the government was offloading shares of state-run industrial units at prices far below market rates," ("Opposition attacks India disinvestment programme," *Reuters News*, 10 September, 1992). The conservative BJP even joined forces with communist parties to protest the government's privatization program: "India's 250,000 steel workers will stage a one-day strike to protest against a proposal to hand over a loss-making state steel plant to a private company...the BJP has supported the strike," ("India's 250,000 steel workers set national strike," *Reuters News*, 6 September, 1993). Anecdotal evidence suggests that government workers were highly opposed to privatization. For example, "Over 25,000 ONGC [Oil and Natural Gas Commission] staff observed 'black day' and their union leaders went on hunger strike on 1 September to mark their protest over the privatisation move," ("ONGC staff fight changes", *The Financial Times*, 17 September, 1993).

Second Phase (1999-2003): Following the defeat of the Congress government in fiscal 1995, the privatization program remained in hiatus until the election of the BJP to the national government in 1999.¹¹ The BJP government established a new "Department for Disinvestment", which declared that the government would undertake majority sale privatizations with the transfer of management control in all non-strategic industries. Between 1999 and 2003, the BJP government privatized 10 firms that had not previously sold equity. The privatizations undertaken by the BJP government include the sale of majority stakes and the transfer of management control to private owners in 17 firms, some of which had previously been partially privatized. We also consider these control transfer privatizations separately as a robustness check.

Political considerations may explain why so few privatizations were undertaken by the BJP. In particular, the main opposition Congress Party campaigned against the government's privatization program: "The Congress today hinted it would go into a confrontation with the Centre [BJP government] on disinvestment," ("Congress for divestment face-off," *The Statesman*, 5 December, 2000). In fact, attributing the subsequent defeat of the BJP-led National Democratic Alliance government in the 2004 Indian elections to its disinvestment [privatization] policy a newspaper editorial opined, "The Indian voters...were rejecting the National Democratic Alliance [NDA] government, which, as one poll slogan had it, stood for the "National Disinvestment Agency" ("Mass Media vs. Mass Reality," *The Hindu*, May 14, 2004).

¹¹ Two short-lived governments sold equity in four firms between 1996 and 1998, including the global depository receipt issues in international markets of firms in the oil and telecommunications sectors. Since these firms had previously sold equity between 1991 and 1995 to avoid endogeneity they are not included again in the regression analysis.

Following the BJP's defeat in the 2004 elections, a new coalition led by the Congress Party formed the government. The new government has stated that it will not privatize profitable firms but will continue with the sale of minority equity stakes in financial markets (Department of Disinvestment (2007)). During its tenure from 2004 to 2009, this government has privatized just one new firm, in 2004.

3. The Role of Financial and Political Factors in the Decision to Privatize

In this section we develop empirical predictions about the main financial and political factors that are likely to affect the decision to privatize.¹² To develop predictions about financial factors that may influence the privatization process we draw upon the literature on why private firms go public (Pagano, Paneta, and Zingales (1998) and Ritter and Welch (2002)). However, a major difference between the IPOs of private firms and the privatization of government-owned firms is that political factors are likely to play a significant role in the latter case. We develop new hypotheses regarding the role of politics in the privatization decision, which we test using firm-level data on both privatized firms and firms that remain fully government-owned. The discussion below is summarized in Appendix Table A1.

3.1. Financial Factors

3.1.1 Firm Size

If investors are less informed than issuers about the value of a company then there may be adverse selection in the quality of firms that choose to go public (Leland and Pyle (1977)). Chemmanur and Fulghieri (1995) have argued that the cost of adverse selection is likely to be greater for younger and smaller firms, which is supported by the results of Pagano, Panetta, and Zingales (1998) who find that smaller firms are less likely to go public. In the privatization context, comparing methods of sale in a cross-country sample of privatized firms, Megginson et al. (2004) find that larger firms are more likely to be privatized through the sale of shares on public rather than private capital markets.

3.1.2 Firm Profitability

To increase public and investor support for privatization governments may prefer to privatize more profitable firms first (Megginson et al. (2004)) because it may increase proceeds from privatization (Gupta, Ham, and Svejnar (2007)), and the success of initial privatizations may be important to build

¹² Governments may also choose to privatize gradually for strategic reasons. For example, Perotti (1995) argues that governments may retain an ownership stake to signal to investors their commitment to not implement policies that are adverse to the firm.

investor support (Dewenter and Malatesta (1997)).¹³ However, the evidence also suggests that unprofitable firms experience the greatest efficiency improvements due to privatization (Claessens, Djankov, and Pohl (1997), and Frydman et al. (1999)). Hence, this relationship is likely to depend on the emphasis placed by the government on proceeds and public support relative to firm efficiency.

3.2 Political Factors

Privatization is often opposed by interest groups such as workers of government-owned firms who fear layoffs, and may be perceived negatively by the public as an inequitable or corrupt transfer of publicly-owned assets to private owners. As a result, political considerations are likely to influence the government's decision to privatize. We investigate the role of politics using a political economy framework in which the benefits of privatization, such as sale proceeds and efficiency gains, are likely to be dispersed across the population, while the costs of privatization, such as layoffs and the loss of private benefits for politicians, tend to be concentrated among a small group. To understand how these concentrated costs may slow down privatization, we investigate the role of political patronage, strength, and competition on the decision to privatize.¹⁴

3.2.1 Political Strength of Governing and Opposition Parties

The potential costs of privatization, such as layoffs, are likely to be geographically concentrated in the region where a firm operates. As a result, voter support for the governing party in that region may decrease because of opposition from interest groups such as government-owned enterprise workers in that constituency, or because of negative public perceptions about privatization. It follows that the governing party may prefer to minimize the effects of a political backlash by delaying the privatization of firms located in constituencies where the governing party does not have strong voter support, and where the opposition party does. Note that in the multi-party system, while support for the governing and opposition parties is negatively correlated, they may not be exactly correlated.

Alternatively, the government may choose to ensure electoral victory and reward its political supporters by not privatizing firms located in regions where it enjoys strong support. Correspondingly, it may prefer to privatize firms located in constituencies that strongly support the opposition party. Hence,

¹³ Proceeds from privatization usually go to the government rather than being reinvested in the privatizing firm (Megginson (2005)). This is also the case in India where the government has raised 492 billion INR (Department of Disinvestment (2007)), or about \$12 billion at a June 6, 2007 exchange rate of 40.4 INR to 1 USD.

¹⁴ There may be an advantage to clustering privatization sales so as to not prolong the costly impact of privatization, although Dewatripont and Roland (1995) argue that a gradual approach makes it easier to build support for reforms. If there is clustering along a time or geographic dimension, note that the econometric methodology controls for time fixed-effects and adjusts the standard errors for clustering at the state level.

the question of the effect of the governing party and opposition party's political strength on the privatization decision is an empirical one.

3.2.2 Political Competition

The effect of a political backlash on electoral outcomes is likely to be greater if the governing and opposition parties face a close race in a region with similar levels of voter support. When the governing party faces strong competition from opposition parties, a decrease in support may cause the governing party to lose seats from that region. Correspondingly, if the governing party is either far ahead or far behind the opposition in terms of voter support then a political backlash may not have much impact on electoral outcomes. If political competition matters in the privatization decision, it follows that the government may prefer to delay the privatization of firms located in regions where the governing party faces strong competition from the opposition.¹⁵

3.2.3 Political Patronage

A principal cause of inefficiency in government-owned firms is arguably interference by politicians in the operations of the firm (Shleifer and Vishny (1994)). If politicians obtain private benefits from controlling these firms (Boycko, Shleifer, and Vishny (1996), and Dinç (2005)), then any loss in these benefits following privatization may influence the decision to privatize. For example, politicians may influence the hiring and purchase decisions of government-owned firms so that they favor political supporters. If the politician in charge of a firm is also elected from the state where the firm is located, he may be reluctant to privatize that firm because the ability to secure campaign contributions and reelection through political patronage is likely to matter more in the politician's home state. To test whether political patronage plays a role, we investigate whether privatization is less likely if a firm is located in the same state from which the politician in charge of that firm is elected.

4. Data

4.1 Financial Data

We observe financial data for 259 of the 280 manufacturing and non-financial service sector companies owned by the federal government of India. We exclude three companies located in the state of Jammu and Kashmir where the elections were not always held due to political unrest. Since firms were privatized during the Congress era (1991-1995) by listing on the stock market, we restrict the sample for

¹⁵ Note that the government could use privatization proceeds for targeted social and infrastructure projects to reduce voter backlash in regions where it faces a close race with the opposition. However, successive governments have spent privatization proceeds on general expenditures rather than on targeted projects in the privatizing states.

this period to firms that meet the listing requirement of having positive profits for the prior three years, which reduces our sample to 239 firms.¹⁶ During the next wave of privatizations by the BJP government (1999-2004), firms were privatized through private asset sales and did not need to meet the listing requirement in order to be selected for privatization. In fact, five of the nine firms privatized by the BJP government do not meet this requirement. To avoid attrition bias we do not require the panel to be balanced. The data are collected by the Centre for Monitoring the Indian Economy (CMIE) from company annual reports.

The data used in the main regression analysis start in fiscal year 1990, one year prior to the launch of the economic reforms of 1991 and end in March 2005 (fiscal year 2004).¹⁷ Data on privatization transactions were obtained from the Disinvestment Commission of the Government of India, and from news sources. Data on the location of the main operations of each firm is from CMIE and we supplement it with information obtained directly from the companies. About 80% of companies have their main operations located in only one electoral constituency. For companies with multiple plants in different locations, we define the main plant as the one with the largest asset base and use its location as the location for the firm.

We observe financial data for 49 of the 50 federal government-owned firms that were privatized between 1991 and 2004. Table 1 provides sample statistics for the main variables used in the analysis and compares privatized firms with firms that remain fully government-owned during this period. Here and in the regression analyses below we include each privatized firm only until the year of privatization, defined as the first sale to private owners, in order to avoid capturing the effect of privatization on firm characteristics. All firms that remain fully government-owned are followed until the end of fiscal 2004, or the latest year the data are available.

Comparing the pre-privatization characteristics of privatized firms to firms that remain fully government-owned, we note several differences. The average annual sales of privatized firms are nearly three times larger than the average sales of firms not chosen for privatization, with the difference being significant at the 1% level. Privatized firms also have a significantly larger asset base compared to firms that are not privatized. All government-owned firms have an average ratio of profits before interest, tax, depreciation, and amortization (*Profit*) to *Sales* equal to -7.5%. However, privatized companies have positive profits with an average ratio of *Profit* to *Sales* equal to 15.5% compared to -9.8% for companies that are not privatized, with the difference being statistically significant at the 1% level. This is

¹⁶ The Securities and Exchange Board of India, the federal regulatory agency for financial markets, requires firms to have a track record of profits for at least three out of the immediately preceding five years, to be able to list on the stock market (SEBI (2000), page 11). We restrict the sample in each year to firms that report positive profits for at least three previous years. We thank the referee for this suggestion.

¹⁷ We observe balance sheet data starting in 1988, which we use as a robustness check to control for listing restrictions on the stock market.

noteworthy because the sale of profitable firms inevitably attracts accusations of selling the “family silver” (“Delhi gets boost from public-sector shares,” *The Asian Wall Street Journal*, 26 February, 1992), and also efficiency considerations suggest that the government sell the least efficient firms first. This comparison does not capture any performance improvements due to privatization because the privatized companies are included in the sample only until the year in which they first sell equity. Privatized companies also have lower wage expenses on average compared to their fully government-owned counterparts, as measured by the ratio of the total wage bill to sales. We control for these differences by including firm characteristics in all the regressions.

4.2 Political Data

We collect electoral data for each 543 single member electoral district on the vote shares obtained by all the national and regional political parties in all the elections to the federal government held since the start of the privatization program. This data is obtained from the Election Commission of India, the regulatory agency in charge of conducting the elections. Information on which parties belong to the main alliances is obtained from press sources and election websites.

We observe political data at its most disaggregated level for each electoral district. The role of political considerations in the privatization decision may however extend beyond the immediate electoral constituency to neighboring areas. Therefore, in the main analysis, we construct the political variables for all the electoral constituencies that are located within a 10 kilometer radius around the firm’s main operations. To do this we use GIS mapping software to match the exact location of the firm to the electoral district it is located in, and to identify all neighboring electoral districts within a specified distance around the firm.

India has a majoritarian electoral system in which the candidate in each constituency or electoral district who receives the plurality of votes is elected. As a result political parties are likely to care about both their absolute electoral performance and their performance relative to that of opposition parties. We construct several variables to measure the political strength of the governing and opposition parties and political competition between the parties. As a measure of the political strength of the governing party, we use the proportion of votes received by the governing party alliance in the most recent elections to the federal parliament in all the electoral constituencies located within a 10 kilometer radius of the firm’s main operations (*Govt Vote Share*). To measure the political strength of the largest opposition party, we use the proportion of votes received by the main opposition party alliance in the most recent elections to the federal parliament (*Opposition Vote Share*). Note that although the two variables are related, *Opposition Vote Share* is not equal to $1 - \text{Govt Vote Share}$ because there are other political parties who may be contesting the elections from that district. *Govt Vote Share* and *Opposition Vote Share* are the

proportion of votes in the most recent federal parliamentary elections won by the governing party coalition and the opposition coalition, respectively, in the electoral constituencies located within a 10 kilometer radius of the firm's main operations. As a robustness check, we also construct the political variables for the electoral districts within a 0, 5, 25, 50, and 100 kilometer radius around the location of the main operations of firms.

To measure the extent of political competition between the governing and the main opposition party alliances we define *Abs Vote Share Difference* as the absolute value of the difference between *Govt Vote Share* and *Opposition Vote Share*. A higher value of this variable indicates that either the governing party alliance is far ahead or it is far behind the opposition party alliance in that region. The variable will take on a smaller value if the two party alliances win a similar number of seats from that state. Thus, a smaller value of *Abs Vote Share Difference* indicates a more competitive race between the governing and opposition party alliances. We also use *Vote Share Difference*, the difference between *Govt Vote Share* and *Opposition Vote Share*, which assumes a higher value in constituencies where the governing party alliance is ahead of the opposition party alliance as an alternative albeit closely related measure of political competition.

We note that the political competition and political strength measures are closely related. In particular, when a party wins the election, by definition it must have won a majority of votes across the different constituencies. Therefore, we are likely to observe more constituencies where the governing party is ahead of the opposition party, than the opposite. In particular, we are more likely to observe high values for *Abs Vote Share Difference* because the governing party alliance won a larger share of votes than the opposition party alliance, rather than the reverse.

In Table 2, Panel A we report summary statistics for the political strength and competition measures across firms, where each firm is matched to electoral constituencies within a 10 kilometer radius around the location of its main operations. In Table 2, Panel B we report that there was one firm privatized during an election year, while the remaining 49 were privatized during non election years. We control for election year effects in the regression analysis in Table 5.

To investigate the role of political patronage, we hand-collect data from various sources including the Comptroller and Auditor General of India (the main auditing agency for government-owned firms) and match each government-owned firm by the state in which it is located to the cabinet minister who has jurisdiction over that firm. Considering location at the state rather than the electoral district level yields more matches between ministers and firms. The identity and the home state of the cabinet ministers are obtained from the Election Commission of India. Up to 32 ministries are involved with the management of these firms but the ministerial portfolios vary cross-sectionally. For example, the Department of Heavy Industry controls the greatest number of firms – 51 firms out of 277, while the Ministry of Petroleum and

Natural Gas controls 21 companies. We collect this data for the years 1991-1995 and 1999-2002, including the cabinet assignments of the Congress government elected in 1991 and the BJP government elected in 1999 until 2002.

5. Results

5.1 Regression Results

In this section we use a regression framework to investigate the role of financial and political factors on the likelihood of privatization. We use the Cox proportional hazard model since it incorporates both the privatization of a given government-owned firm and the time of privatization. More specifically, the hazard rate of privatization is given by

$$h(t) = h_0(t) \exp(\beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k), \quad (1)$$

where $x_1 \dots x_k$ are firm, constituency, and state level explanatory variables, which include both time-varying and time-constant variables. A description of the proportional hazard model may be found in Wooldridge (2001), among others. The time of privatization is determined by the government's first sale of shares in the firm.

To account for firm-specific characteristics that can have an effect on privatization we include annual profits, sales, and the ratio of the wage bill to sales in the specifications, lagged one year. Notice that in the Cox proportional hazard model the coefficient estimates are robust to any baseline hazard function $h_0(t)$. This implies that the specification is robust to any time-specific common factors so that year fixed effects are redundant. The regressions also include fixed effects for 35 industries classified according to two-digit standard industrial classification (SIC) codes. Thus, the framework incorporates the fact that in some industries and in some years there are no privatizations. Note that the heteroskedasticity-robust standard errors are corrected for clustering at the state level. Throughout the paper we report the coefficients rather than the hazard ratios from the estimations.

Finally, during the Congress era, firms were privatized by listing on the stock market, whereas during the next wave of privatizations by the BJP government, firms were privatized mainly through private asset sales. The Securities and Exchange Board of India, the federal regulatory agency for financial markets, requires firms to have a track record of profits for at least three out of the immediately preceding five years, to be able to list on the stock market (SEBI (2000), page 11). Therefore, we restrict the sample to firms that report positive profits for at least three previous years, for the Congress years (1991-1996). This is more restrictive than the SEBI requirement, as in our criteria will drop all firms that do not meet the SEBI requirement, and potentially, some firms that do. We do not similarly restrict the

sample for the BJP era because these firms were privatized through private asset sales, and in fact five of the 10 firms privatized by the BJP government do not meet the listing requirement.

5.1.1 Financial Factors

We start by exploring the influence of firm-specific factors on the privatization decision. In particular, we include the logarithm of *Sales* as a measure of size, the ratio of *Profit* to *Sales* as a measure of profitability, and the ratio of *Wages* to *Sales* as a proxy measure of the size of a firm's workforce. From the results reported in column (1) of Table 3 we note that larger firms with lower wages are significantly more likely to be privatized early, while profitability is not significantly related to the privatization decision.

The size result is consistent with the hypothesis that larger firms face lower information costs and are therefore more likely to issue equity. The result that privatization is likely to be significantly delayed for firms with a large wage bill suggests that employees of firms with a large workforce may successfully oppose privatization.

5.1.2 Political Strength and Competition

Examining the role of political costs in the privatization decision, we note from column (1) of Table 3 that the coefficient of *Govt Vote Share*, is positive but not statistically significant, while the coefficient of *Opposition Vote Share* is negative and statistically significant at the 1 percent level. It appears that the rate of privatization is significantly slower in electoral constituencies where the opposition party alliance enjoys stronger voter support relative to the governing and its allied parties.

Considering the role of political competition next, we note from columns (3) and (4) that the coefficients of *Vote Share Difference* and *Abs Vote Share Difference* are positive and statistically significant at the 1 percent level. The results suggest that privatization is significantly delayed in districts where the governing and opposition party alliances are in a close race, as captured by smaller values of *Abs Vote Share Difference*. Relatedly, a smaller value of *Vote Share Difference*, which occurs if the opposition party won a similar or larger share of votes relative to the governing party at the district level, is also associated with a decrease in the rate of privatization in those districts. These results suggest that political competition between the governing and opposition parties plays a significant role in the privatization decision.

We also investigate whether the electoral results are a proxy for location-specific demographic characteristics such as income level (*Ln Per Capita Income*) and growth opportunities (*Per Capita Income Growth*, or annual change in per capita income) at the state level. At the electoral district level, we consider *Literacy* and *Urbanization*, which are the literacy and urbanization rates in a 10 kilometer radius around the firm's main operations. From the results reported in columns (1) – (5) of Table 3 we

note that the coefficients of per capita income and income growth are not statistically significant. However, the rate of privatization is significantly faster in electoral districts with a more literate population, suggesting that educated voters may be more in favor of market reforms. Privatization is significantly delayed in districts with higher rates of urbanization, which may capture a greater presence of organized labor unions, which typically oppose privatization, in urban rather than rural areas. Note that the political strength and competition results remain robust to these differences in demographic characteristics across regions.

If a firm is the only employer in an area, then the privatization decision may be more politically difficult. We consider the importance of a firm in that particular area with the variable *Firm Importance*, which is the ratio of a firm's sales in the total sales of all government-owned firms, located in a 10 km radius around the firm's main operations.¹⁸ As reported in Table 3, the coefficient of this variable is negative but not statistically significant.

Our results suggest that rather than rewarding a supportive electorate, the government acts to minimize the effect of a political backlash on electoral outcomes by delaying the privatization of firms that are located in districts where the governing party faces a competitive race, and in districts where it has less voter support than the opposition party. Facing a trade-off between the locally concentrated costs and the dispersed benefits of privatization, the government's decision to privatize some firms and not others appears to depend significantly on the political strength of the opposition party and competition between the governing and opposition parties in the districts surrounding the main operations of the firms.

5.1.3 The Role of Politics Across Regimes

In Table 4 we investigate whether the role of political strength and competition varies across the two privatizing governments, the Congress and the BJP. To do this we interact the political variables with a dummy variable that is equal to one for the years 1999-2003 (*BJP Govt*), representing the BJP era. The results from estimating the Cox proportional hazard model presented in Table 4 suggest that the political strength and competition results are similar across the two regimes. While this is a non-linear specification so the magnitude of the interaction effects is not easily interpreted, the lack of statistical significance suggests that the effect of *Opp Vote Share*, *Abs Vote Share Difference*, and *Vote Share Difference*, does not vary significantly across the BJP and Congress regimes. However, it appears that *Govt Vote Share* has a significant impact during the Congress era – during these years privatization was more likely to be delayed in regions where the governing party alliance was weak. Note that all the variables include the same firm and location specific controls as in Table 3.

¹⁸ We thank the Associate Editor for this suggestion.

5.1.4 Election Year Effects

If politics plays an important role, then the privatization decision may be affected by the timing of elections. We investigate the presence of political business cycles, as described in other contexts by Brown and Dinc (2005), and Bertrand, Schoar, and Thesmar (2007). Specifically, in Table 5 we examine whether the timing of elections influences the privatization decision by including a dummy variable, *Election Year*, that is equal to one in the year of an election, i.e. in the years 1995, 1997, 1998, and 2003. We estimate an exponential hazard specification with fixed effects for each government. The results reported in Table 5 show that privatization is significantly delayed in election years, as suggested by the negative coefficient of the *Election Year* variable. This is consistent with the view that privatization is politically costly, and the government seeks to minimize the potential negative electoral impact of privatization by avoiding it in election years. We also note that all the political variables retain their sign and significance. Hence, political competition between the governing and opposition parties and the strength of the opposition party remains a significant influence on the privatization decision, after controlling for election year effects.

We do not include election year effects in all the specifications because in the rest of this analysis we use a Cox proportional hazard model that controls for all the common elements at a given point in time, akin to having time dummies, so the election year dummy would drop out. The Cox specification has the advantage of being able to control for year effects hence we retained this specification for the rest of the analysis.

5.2 Political Patronage

If the politician with jurisdiction over a firm is elected from the state where the firm is located, s/he may be reluctant to privatize that firm because the ability to secure campaign contributions and reelection through political patronage is likely to matter more in the politician's home state. To test this hypothesis, the cabinet minister in charge of each firm is identified for each firm-year observation. The minister's home state is then compared with the state where the firm's main operations are located. Due to the lack of independence from one year to the next if the same minister remains in charge of a given firm, an uninterrupted sequence of the minister's home state for that firm is taken as one minister-firm observation. The industries in which no privatizations occur are excluded from the sample.

The results are presented in Table 6. In Panel A, we describe the tenure of the government in power between 1991 and 1995, where the home state of the cabinet minister in charge of a firm matches the state where the firm's main operations are located in 15 cases. In Panel B, we present the results for both the Congress and the BJP governments for the years 1991-2002 and including both waves of

privatization. We find that the home state of the cabinet minister in charge of a firm matches the state where the firm's main operations are located in 45 cases, but not a single one of these firms are privatized. The correlation between the incidence of privatization and the match between a firm's location and the minister's home state is negative and significant at the 5% level. While regression analysis is not possible because of the lack of heterogeneity, the results suggest that political patronage plays an important role in the privatization decision.

6. Robustness Checks

6.1 Political Variables at Different Distances

We check the robustness of the regression results by constructing the political variables at varying distances from the main operations of the firm in Table 7. In particular, we construct all the political variables for all electoral constituencies located within a 0, 5, 25, 50, and 100 kilometer radius around the main operations of the firm.

From the results described in Table 7, Panels A-E we note that the political strength and competition results are similar to those reported in Table 3. The coefficient of *Opposition Vote Share*, representing the strength of the opposition party alliance, remains negative and statistically significant at the 1 percent level in all the specifications when constructed at varying distances from the firm, while *Vote Share Difference* and *Abs Vote Share Difference* are significant at the 1 percent to 10 percent levels.

6.2 Strength of Leftist Parties

Our results are robust to alternative political ideologies since the privatizing governments include the ideologically center-left Congress Party and the right-wing BJP-led government. We also check whether the strength of the opposition communist parties in a region has an impact on the decision to privatize. The results are reported in columns (1)-(4) of Table 8. *Communist Vote Share*, defined as the proportion of votes won by the communist parties in all districts within a 10 kilometer radius around the firm, has a slightly significant and positive impact on the rate of privatization in column (1), but is not significant in the remaining specifications. This may be because the communist parties lack broad-based support across the different Indian states - these parties received 8% of the total vote on average in all election years. Note that the coefficients of *Opposition Vote Share*, *Vote Share Difference* and *Abs Seat Share Difference* remain positive and statistically significant, suggesting these results are not driven by the political ideology of Communist opposition parties.

6.3 Role of the State Legislature

The federal government's decision to privatize a firm may also be influenced by the government in power in the state where the firm is located. To investigate, we include a dummy variable, *State Assembly Majority*, which is equal to one if the governing party in the federal parliament is also the governing party in the state legislative assembly. From the results reported in columns (5)-(8) of Table 8 we note that *State Assembly Majority* has a negative sign, although the coefficient is not statistically significant. One explanation for this lack of influence is that the electoral districts remain the same throughout our sample period, gerrymandering by state governments to affect the federal elections is not possible, which may reduce their influence on the federal government. We also note that our political measures are not proxies for local political considerations since all three variables *Opposition Vote Share*, *Vote Share Difference*, and *Abs Vote Share Difference* retain their sign and significance in columns (5)-(8).

6.4 Privatization Method

Starting in 1999 the BJP-led government sold majority stakes and transferred management control to private owners in 17 firms. To investigate whether the political results are robust to the privatization method we separately consider control transfer privatizations, which were all undertaken between 1999 and 2003.¹⁹ In Table 9 we report the results from a Cox proportional hazard specification, where the political variables are constructed using data from the 1999 federal elections. Consistent with the political strength results obtained using the full sample we find that control transfer privatizations are significantly delayed if the firm is located in a region where the opposition party won a larger proportion of votes (*Opposition Vote Share*) or where the governing party won fewer votes than the opposition (*Vote Share Difference*). The coefficient of *Abs Vote Share Difference* has the same sign as before but is less statistically significant due to the small number of control transfer privatizations that have been undertaken.

6.5 Alternative Specifications

To investigate whether the political variables are a proxy for other factors, such as non-linearity in firm size, we include dummy variables for quintiles of firm sales in the specification.²⁰ Results from a Cox proportional hazard specification reported in Table 10, Panel A, columns (1)-(4) show that the political strength and political competition measures, *Opp Vote Share* and *Abs Vote Share Difference* respectively, retain their sign and significance.

¹⁹ We thank the Associate Editor for suggesting this robustness check.

²⁰ We thank the referee for suggesting this robustness check.

In columns (5)-(8) of Table 10, we estimate a Cox proportional hazard specification where all the firm-specific variables are winsorized at the 5th and 95th percentiles to mitigate the effect of potential outliers. The political variables are similar in magnitude and statistical significance to Table 3. The main difference is that *Profits/Sales* is now positive and statistically significant, suggesting that, once we control for the potential effect of outliers, profitable firms are more likely to be privatized early.

Lastly, in Table 11, we investigate whether the political results are robust to restricting the sample to the 15 largest Indian states.²¹ We note that the coefficients of the political variables retain their sign and are highly statistically significant.

7. Impact of Privatization on Firm Performance

We find that larger firms with smaller workforces are more likely to be privatized early, suggesting that the privatization decision is endogenous to firm performance. Since political factors play a significant role in the decision to privatize, to identify the impact of privatization on firm performance we use political variables as an instrument for the privatization decision. Specifically, we estimate the following two-stage treatment effect regression by pooling data from the Congress (1991-1995) and BJP-led government years (1999-2003):

$$\Pr(\text{Privatized}_{it}=1) = \Phi(\alpha_0 + \alpha_1 \text{Vote Share Difference}_{it} + \alpha_2 \text{Privatization Eligible}_{it} + \alpha_3 X_{it} + \alpha_I + \alpha_T + \varepsilon_{it}) \quad \dots(2)$$

$$Y_{it} = \beta_1 \text{Privatized}_{it} + \beta_2 X_{it} + \alpha_I + \alpha_T + \eta_{it}, \quad (3)$$

where $t=1,2$ indexes the government, X_{it} are firm-specific and demographic controls, Y_{it} measures changes in firm performance after privatization relative to before privatization, and α_I, α_T are industry and year fixed effects, respectively.²² The control group is firms that have not been privatized. Note that these regressions include firms that do not meet the listing requirement. Instead, we use the listing requirement as an instrumental variable in the first stage regression. In the first stage, we estimate a probit regression where the dependent variable (*Privatized*) is equal to one if the firm is privatized by the government in power, using *Vote Share Difference* (difference between the vote shares of the governing and opposition parties in all electoral districts within a 10 kilometer radius around the firm) and *Privatization Eligible* as instrumental variables. *Privatization Eligible* is a dummy variable that is equal to one for firms that have

²¹ These states are Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal. While several firms are located in Delhi, the capital city elects just seven seats to parliament compared to 32 seats on average from the largest states. Including Delhi in the sample of largest states does not change the results and to save space we do not report these results. We thank the referee for suggesting this robustness check.

²² The regressions include two observations for each firm, one from the Congress period (1991-1995) and the other from the BJP era (1999-2003). The exception is firms that are privatized by the Congress government, which are dropped from the sample in the subsequent BJP era to avoid endogeneity. We thank the referee for suggesting this analysis.

positive profits for the years 1988-1990 during the Congress era. This variable is set equal to one for all the firms in the BJP (1999-2003) era since firms were privatized through private asset sales during this period and did not need to meet the listing requirement to be considered for privatization. The first stage regression in equation (2) also includes all the firm-specific and demographic controls included in Table 3, as well as industry and year fixed effects. From the results reported in Panel B of Table 12 we note that *Vote Share Difference* and *Privatization Eligible* have a significant and positive impact on the probability of privatization.

The literature has documented improvements in the performance of firms due to privatization (Megginson and Netter, 2001; Gupta, 2005; Megginson, 2005). Therefore, it would be interesting to disaggregate the impact on operating performance. In the second stage regressions, we investigate whether documented improvements in firm performance following privatization is due to changes in sales revenues as measured by the growth rates of sales; investment strategy as measured by the growth rates of gross fixed assets, net fixed assets, and research and development expenditures; and efficiency as measured by the growth rates of profits, profits/sales, and profits/wages.

The dependent variables capture the change in firm performance during the tenure of a particular government. Specifically, *Sales Growth* is defined as the log of the ratio of firm sales one year after the end of the government's term (1996 for Congress and 2004 for BJP) to firm sales one year before the beginning of the government's term (1990 for Congress and 1998 for BJP). The remaining variables are *Assets*, *Net Fixed Assets*, *Profits*, *Profits/Sales*, *Profits/Wages*, and *Wages/Sales*, which are similarly constructed.

From the results reported in Panel A of Table 12 we note that relative to firms that remain fully government-owned, privatized firms experience a significant increase in sales (at the 10 per cent level) and assets (at the 5 percent level), and invest significantly more in net fixed assets (at the 10 percent level). With regard to profitability, we find that privatized firms experience a significant increase in the level of profits (at the 5 percent level). The results show that both profits/sales and profits/wages increase for privatized firms, suggesting that privatization leads to efficiency improvements. Lastly, we find that privatized firms invest more in R&D expenditures compared to firms that remain fully government-owned. Hence, using political variables based on firm location to address the endogeneity in the privatization decision, our results suggest that privatization leads to a significant improvement in the sales and profitability of government-owned firms, increases in investment in fixed assets and R&D expenditures, and improvements in the productive efficiency of these government-owned firms.

8. Conclusion

Based on the fact that most privatizing governments sell government-owned firms over time rather than at once, we investigate whether firm-specific financial factors and the political objectives of the government are likely to affect the pattern of privatization. Using data on Indian government-owned firms, which includes both privatized firms and firms that remain fully government-owned, we use geographic mapping techniques to match firms based on their location to electoral constituencies at different distances around the main operations of the firms. Our results show that the decision to privatize is affected by firm-level financial characteristics and location-specific political factors.

Consistent with the findings of the literature on IPOs by private firms, the results suggest that larger firms are more likely to be privatized early. Unlike IPOs by private firms, we find that political factors play a major role in the decision to privatize government-owned firms. While the benefits of privatization, such as efficiency improvements, are dispersed across the population, the costs are likely to be geographically concentrated among a small group, such as employees of government-owned firms. The public too may perceive privatization negatively as an inequitable transfer of publicly-owned assets to private owners. Hence, opposition from interest groups and a political backlash could reduce voter support for the governing party in the electoral constituency where the privatized firm is located. The effects of a backlash on electoral outcomes are likely to be more pronounced if the governing party faces a close race with other political parties in that region.

The results show that privatization is more likely to be delayed if the main operations of a firm are located in districts where the governing party alliance does not enjoy strong support, or where the governing and opposition party alliances face a close race. This result is consistent with the hypothesis that the government may prefer to privatize firms located in regions where the electoral effects of a political backlash can be minimized. The results are robust to the political ideology of the government; to firm-specific factors such as size, income, and wages; industry and year effects; regional demographic characteristics such as income, growth, and education; and alternative samples and specifications.

The evidence also suggests that the private benefits that politicians obtain from controlling government-owned firms can influence the decision to privatize. In particular, we find that no government-owned firm located in the home state of the politician in charge is ever privatized.

Lastly, our work has implications for the literature on privatization that studies the post-privatization period by assuming (often implicitly) that firms are selected randomly for privatization. This paper shows that selection for privatization is not random. Using political variables to address the endogeneity in the privatization decision, we find that privatization leads to significant changes in capital expenditures, profitability, and efficiency of government-owned firms.

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Appendix Table A1: Summary of Hypotheses and Predictions

Theory		Prediction
<i>Financial Factors</i>		
<i>Size</i>	Costs due to asymmetric information between investors and the firm are likely to be lower for larger firms (Chemmanur and Fulghieri (1995); Pagano et al. (1998)).	Larger firms are more likely to be privatized.
<i>Profitability</i>	Sale proceeds from privatization may be higher if the firms are more profitable (Gupta et al.(2007)). To build support for privatization the government may prefer to sell better performing firms (Dewenter and Malatesta (1997); Megginson et al. (2004)). Efficiency improvements are highest for the least efficient firms (Claessens et al. (1997); Frydman et al. (1999)).	Profitable firms are more likely to be privatized. Less profitable firms are more likely to be privatized.
<i>Political Factors</i>		
<i>Political Strength</i>	The adverse effects of privatization, such as layoffs, are concentrated in the region where a firm operates. The public too may perceive privatization negatively as a transfer of assets to private owners. So the government may lose votes in the region where the privatized firm is located.	Firms located where the governing party has strong voter support are more likely to be privatized. Correspondingly, firms located where the opposition party has less voter support are more likely to be privatized.
<i>Political Competition</i>	The effect of a backlash on voter support is likely to be greater if the governing and opposition parties face a close race with similar levels of voter support.	Firms located where the governing and opposition parties are not in close competition are more likely to be privatized.
<i>Political Patronage</i>	Politicians obtain private benefits from controlling government-owned firms (Shleifer and Vishny (1994); Boycko et al. (1996); Dinç (2005)). These benefits may be a greater priority if the firm is located in the state from which the politician with jurisdiction over that firm is elected.	Firms located in the home state of the Cabinet Minister with jurisdiction over that firm are less likely to be privatized.

Table 1. Comparing Privatized and Fully Government-Owned Firms

This table presents average values of the firm-specific financial variables used in the analysis for fiscal years 1990 to 2004. *Privatized* denotes the companies in which the government sold shares during this period. It includes firm-years until the first time a company sells shares and not after. *Sales* and *Assets* are the annual sales and annual assets of the firm, respectively, and are in millions of Indian National Rupees. *Profit* is the annual profit before interest, taxes, and depreciation; *Wages* is the firm's annual wage expenses. All the firm-level variables are winsorized at the 5th and 95th percentiles to decrease the influence of any outliers. Standard deviations are in parentheses. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively, in a two-sided equality of means t-test comparing privatized firms to firms that remain fully government-owned.

Variables	<i>Privatized</i>	<i>Fully Govt-Owned</i>	<i>All Firms</i>
<i>Sales</i>	10,969*** (12,516)	3,701 (7,767)	4,372 (8,579)
Number of Firm-years	233	2289	2522
Number of Firms	49	210	259
<i>Assets</i>	15,204*** (20,313)	7,870 (15,839)	8,548 (16,437)
Number of Firm-years	233	2287	2520
Number of Firms	49	210	259
<i>Profit/Sales (%)</i>	15.5*** (22.3)	-9.8 (68.7)	-7.5 (66.2)
Number of Firm-years	233	2286	2519
Number of Firms	49	210	259
<i>Wages/Sales (%)</i>	14.7*** (16.7)	44.0 (54.8)	41.3 (53.1)
Number of Firm-years	232	2282	2514
Number of Firms	49	210	259

Table 2. Comparing Political Data across Privatized and Fully Government-Owned Firms

Panel A of this table presents the sample averages and standard deviations of the political variables for the five federal elections held in 1991, 1996, 1998, 1999, and 2004. *Privatized* denotes the companies in which the government sold shares during this period. *Govt Vote Share* and *Opposition Vote Share* are the proportion of votes in the most recent federal parliamentary elections won by the governing party coalition and the opposition coalition, respectively, in the electoral constituencies located within a 10 km radius of the firm's main operations in Panel A; *Vote Share Difference* is the difference between *Govt Vote Share* and *Opposition Vote Share*; and *Abs Vote Share Difference* is the absolute value of that difference. Standard deviations are in parentheses. Panel B indicates the number of firms privatized in an election year. *Election Year* is a dummy variable that takes the value of 1 for the fiscal years of 1995, 1997, 1998, 2003; the fiscal year 1995 runs from April 1995 to March 1996 and similarly for others.

Panel A			
Variables	<i>All Firms</i>	<i>Fully Govt-Owned</i>	<i>Privatized</i>
<i>Govt Vote Share</i>	0.396 (0.148)	0.395 (0.149)	0.399 (0.143)
<i>Opposition Vote Share</i>	0.308 (0.151)	0.310 (0.148)	0.291 (0.172)
<i>Vote Share Difference</i>	0.088 (0.228)	0.085 (0.226)	0.108 (0.238)
<i>Abs Vote Share Difference</i>	0.191 (0.151)	0.191 (0.148)	0.191 (0.177)
Number of Firm-Years	1579	1426	153

Panel B: Number of Firms Privatized in Election Years			
	<i>Election Year</i>	Other Years	Total
Number of firms privatized	1	49	50

Table 3. The Role of Financial and Political Factors in the Decision to Privatize

This table presents results from estimating a Cox proportional hazard regression of the government's decision to privatize, covering fiscal years 1990-2004. *Ln (Sales)* is the log of annual sales; *Profit* is annual profit before interest, taxes and depreciation; *Wages* is the firm's annual wage expenses; all are lagged one year. *Ln (Per Capita Income)* is the log of annual per capita income in the firm's state; *Per Capita Income Growth* is the annual % change in *Per Capita Income*; *Literacy* and *Urbanization* are the literacy and urbanization rates in a 10 km radius around the firm's main operations. *Firm Importance* is the firm's share in the total sales of all government-owned firms located in a 10 km radius around the firm's main operations. *Govt Vote Share* and *Opposition Vote Share* are the proportion of votes in the most recent federal parliamentary elections won by the governing and opposition party coalitions respectively, in the electoral constituencies located within a 10 km radius of the firm's main operations; *Vote Share Difference* is the difference between *Govt Vote Share* and *Opposition Vote Share*; and *Abs Vote Share Difference* is the absolute value of that difference. Heteroscedasticity-robust standard errors, clustered at the state level, are in parentheses. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)
<i>Ln (Sales)</i>	0.630*** (0.153)	0.630*** (0.147)	0.721*** (0.134)	0.686*** (0.138)	0.686*** (0.143)
<i>Profit/Sales</i>	0.024 (0.038)	0.024 (0.037)	0.019 (0.039)	0.02 (0.041)	0.022 (0.037)
<i>Wages/Sales</i>	-3.336* (1.965)	-3.200* (1.744)	-3.169* (1.755)	-3.002* (1.672)	-3.233* (1.905)
<i>Ln (Per Capita Income)</i>	0.304 (0.499)	0.296 (0.485)	0.342 (0.565)	0.312 (0.534)	0.375 (0.547)
<i>Per Capita Income Growth</i>	-0.261 (0.517)	-0.269 (0.540)	-0.127 (0.628)	-0.199 (0.600)	-0.183 (0.620)
<i>Literacy</i>	3.039* (1.590)	3.052** (1.494)	2.669*** (0.995)	2.787*** (1.067)	2.718** (1.122)
<i>Urbanization</i>	-1.866*** (0.715)	-1.931*** (0.621)	-1.351** (0.639)	-1.669*** (0.582)	-1.664*** (0.627)
<i>Firm Importance</i>	-0.402 (0.480)	-0.444 (0.393)	-0.405 (0.401)	-0.495 (0.374)	-0.464 (0.374)
<i>Govt Vote Share</i>		0.967 (1.386)			
<i>Opposition Vote Share</i>			-2.914*** (0.694)		
<i>Vote Share Difference</i>				1.789*** (0.656)	
<i>Abs Vote Share Difference</i>					1.680*** (0.554)
Industry FE	Yes	Yes	Yes	Yes	Yes
Number of Firms	239	239	239	239	239
Number of Firm-years	1579	1579	1579	1579	1579

Table 4. The Role of Politics by Regime

This table presents results from estimating a Cox proportional hazard regression of the government's decision to privatize, covering fiscal years 1990-2004, to investigate whether the impact of the political variables differ across regimes. *BJP Govt* is a dummy variable that takes the value of one for the years 1999-2004. The remaining variables are as described in Table 3. All the regressions include *Firm-specific controls* (*Ln (Sales)*, *Profit/Sales*, *Wages/Sales*) and *Demographic Controls* (*Ln (Per Capita Income)*, *Per Capita Income Growth*, *Literacy*, and *Urbanization* at different distances). Heteroscedasticity-robust standard errors, clustered at the state level, are in parentheses. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)
<i>Govt Vote Share</i>	2.363*			
	(1.435)			
<i>Govt Vote Share *BJP Govt</i>	-4.183			
	(3.148)			
<i>Opposition Vote Share</i>		-3.008***		
		(0.646)		
<i>Opposition Vote Share *BJP Govt</i>		0.536		
		(2.395)		
<i>Vote Share Difference</i>			2.148***	
			(0.454)	
<i>Vote Share Difference *BJP Govt</i>			-2.065	
			(2.399)	
<i>Abs Vote Share Difference</i>				1.438***
				(0.486)
<i>Abs Vote Share Difference *BJP Govt</i>				1.550
				(2.280)
Firm-specific and Demographic controls	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Number of Firms	239	239	239	239
Number of Firm-years	1579	1579	1579	1579

Table 5. The Role of Politics and Finance Controlling for Election Year Effects

This table presents results from estimating an exponential hazard regression covering fiscal years 1990-2004, controlling for the years in which elections are held and with government fixed-effects. *Election Year* is a dummy variable that takes the value for the election years of 1995, 1997, 1998, 2003. The remaining variables are as described in Table 3. Heteroscedasticity-robust standard errors, clustered at the state level, are in parentheses. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)
<i>Ln(Sales)</i>	0.651*** (0.143)	0.649*** (0.142)	0.733*** (0.115)	0.702*** (0.126)	0.705*** (0.125)
<i>Profit/Sales</i>	0.023 (0.039)	0.023 (0.040)	0.017 (0.045)	0.018 (0.046)	0.021 (0.042)
<i>Wages/Sales</i>	-3.427* (1.795)	-3.301* (1.738)	-3.308* (1.757)	-3.126* (1.693)	-3.377* (1.921)
<i>Ln (Per Capita Income)</i>	-0.023 (0.240)	-0.029 (0.239)	0.032 (0.258)	-0.005 (0.252)	0.042 (0.255)
<i>State Per Capita Income Growth</i>	0.249*** (0.061)	0.249*** (0.061)	0.236*** (0.064)	0.240*** (0.063)	0.245*** (0.063)
<i>Literacy</i>	3.139* (1.656)	3.125* (1.647)	2.663** (1.036)	2.766** (1.167)	2.780** (1.126)
<i>Urbanization</i>	-1.903** (0.768)	-1.961** (0.775)	-1.331* (0.769)	-1.656** (0.719)	-1.639** (0.699)
<i>Firm Importance</i>	-0.426 (0.504)	-0.465 (0.493)	-0.465 (0.472)	-0.542 (0.453)	-0.501 (0.456)
<i>Govt Vote Share</i>		0.913 (1.555)			
<i>Opposition Vote Share</i>			-2.869*** (0.917)		
<i>Vote Share Difference</i>				1.813** (0.705)	
<i>Abs Vote Share Difference</i>					1.708*** (0.534)
<i>Election Year</i>	-1.757* (1.023)	-1.761* (1.026)	-1.815* (1.041)	-1.801* (1.038)	-1.810* (1.030)
Government FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Number of Firms	239	239	239	239	239
Number of Firm-years	1579	1579	1579	1579	1579

Table 6. The Role of Political Patronage in the Decision to Privatize

This table presents a two-way tabulation and correlation analysis between the decision to privatize a firm and the home states of the ministers who have jurisdiction over that firm. It excludes the industries in which no privatizations occur. Each minister-firm pair is taken as a single observation regardless of the time length the firm remains under that minister's jurisdiction. *Main Operations in Home State* is a dummy variable that is equal to one if the state where the firm's main operations are located is the same as the state from which the cabinet minister who has jurisdiction over that firm is elected. *Privatized* is a dummy variable that is equal to one if the firm is privatized while under the jurisdiction of a given minister. Once a firm is privatized it is dropped from the sample. ** denotes statistical significance at the 5% level.

Panel A: Congress government (1991-1995)			
	<i>Privatized</i>		
<i>Main Operations in Home State</i>	No	Yes	Total
No	133	38	171
Yes	15	0	15
Total	148	38	186
Correlation	-0.150**		

Panel B: Congress & BJP governments (1991-1995 & 1999-2002)			
	<i>Privatized</i>		
<i>Main Operations in Home State</i>	No	Yes	Total
No	518	46	564
Yes	45	0	45
Total	563	46	609
Correlation	-0.081**		

Table 7. Political measures at different distances from the main operations of the firm

This table presents results from estimating a Cox proportional hazard regression covering fiscal years 1990-2004, where the political variables are measured for all electoral constituencies within different radii around the main operations of the firm. In Panel A, the political variables are measured for electoral constituencies located within a 0 km radius of the firm's main operations; Panel B within a 5 km radius; Panel C within a 25 km radius; Panel D within a 50 km radius; and Panel E within a 100 km radius. All the regressions include *Firm-specific controls* (*Ln (Sales)*, *Profit/Sales*, *Wages/Sales*) and *Demographic Controls* (*Ln (Per Capita Income)*, *Per Capita Income Growth*, *Literacy*, and *Urbanization* at different distances). The variables are defined in Table 3. Heteroscedasticity-robust standard errors, clustered at the state level, are in parentheses. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Electoral constituency within 0 Kilometers around the main operations of the firm				
	(1)	(2)	(3)	(4)
<i>Govt Vote Share</i>	-0.073 (1.396)			
<i>Opposition Vote Share</i>		-1.754*** (0.612)		
<i>Vote Share Difference</i>			0.964* (0.547)	
<i>Abs Vote Share Difference</i>				1.087* (0.631)
Firm-specific and Demographic controls	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
Number of Firm-years	1579	1579	1579	1579
Number of Firms	239	239	239	239
Panel B: Electoral constituencies within 5 Kilometers around the main operations of the firm				
<i>Govt Vote Share</i>	0.515 (1.560)			
<i>Opposition Vote Share</i>		-2.584*** (0.633)		
<i>Vote Share Difference</i>			1.528*** (0.580)	
<i>Abs Vote Share Difference</i>				1.733** (0.697)
Firm-specific and Demographic controls	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
Number of Firm-years	1579	1579	1579	1579
Number of Firms	239	239	239	239
Panel C: Electoral constituencies within 25 Kilometers around the main operations of the firm				
<i>Govt Vote Share</i>	0.840 (1.550)			
<i>Opposition Vote Share</i>		-2.946*** (0.632)		
<i>Vote Share Difference</i>			1.843*** (0.705)	
<i>Abs Vote Share Difference</i>				1.992*** (0.680)
Firm-specific and Demographic controls	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
Number of Firm-years	1579	1579	1579	1579
Number of Firms	239	239	239	239

Table 7 continued on next page

Table 7 continued

Panel D: Electoral constituencies within 50 Kilometers around the main operations of the firm				
<i>Govt Vote Share</i>	0.313 (1.593)			
<i>Opposition Vote Share</i>		-2.742*** (0.593)		
<i>Vote Share Difference</i>			1.535** (0.699)	
<i>Abs Vote Share Difference</i>				1.494** (0.628)
Firm-specific and Demographic controls	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
Number of Firms	239	239	239	239
Number of Firm-years	1579	1579	1579	1579
Panel E: Electoral constituencies within 100 Kilometers around the main operations of the firm				
<i>Govt Vote Share</i>	0.609 (1.720)			
<i>Opposition Vote Share</i>		-2.658*** (0.711)		
<i>Vote Share Difference</i>			1.511** (0.742)	
<i>Abs Vote Share Difference</i>				1.336* (0.712)
Firm-specific and Demographic controls	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
Number of Firms	239	239	239	239
Number of Firm-years	1579	1579	1579	1579

Table 8: Controlling for the Role of Ideology and Regional Politics on the Decision to Privatize

This table presents results from estimating a Cox proportional hazard regression of the government's decision to privatize, covering fiscal years 1990-2004, controlling for the role of Communist parties and for the government at the state level. *Communist Vote Share* is the share of votes won by the Communist parties in a 10 km radius around the firm's main operations in the most recent federal elections. *State Assembly Majority* takes the value of one if the governing party also has majority in the local state government where the firm is located and the remaining variables are as described in Table 3. Heteroscedasticity-robust standard errors, clustered at the state level, are in parentheses. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Ln(Sales)</i>	0.645*** (0.146)	0.721*** (0.134)	0.693*** (0.137)	0.693*** (0.142)	0.631*** (0.149)	0.720*** (0.134)	0.685*** (0.138)	0.684*** (0.144)
<i>Profit/Sales</i>	0.015 (0.038)	0.019 (0.038)	0.016 (0.040)	0.016 (0.037)	0.024 (0.037)	0.019 (0.039)	0.02 (0.041)	0.022 (0.037)
<i>Wages/Sales</i>	-3.208* (1.763)	-3.176* (1.752)	-3.049* (1.689)	-3.250* (1.912)	-3.179* (1.748)	-3.152* (1.742)	-2.987* (1.666)	-3.218* (1.897)
<i>Ln (Per Capita Income)</i>	0.311 (0.505)	0.344 (0.563)	0.323 (0.542)	0.382 (0.560)	0.32 (0.490)	0.348 (0.566)	0.32 (0.535)	0.382 (0.548)
<i>Per Capita Income Growth</i>	-0.215 (0.573)	-0.123 (0.638)	-0.166 (0.617)	-0.151 (0.634)	-0.278 (0.537)	-0.132 (0.626)	-0.204 (0.596)	-0.191 (0.617)
<i>Literacy</i>	2.434 (1.501)	2.607** (1.242)	2.423* (1.238)	2.281* (1.282)	3.121** (1.434)	2.688*** (0.978)	2.811*** (1.047)	2.748** (1.098)
<i>Urbanization</i>	-1.528** (0.739)	-1.317* (0.782)	-1.430* (0.754)	-1.392* (0.768)	-2.007*** (0.642)	-1.383** (0.665)	-1.705*** (0.597)	-1.704*** (0.654)
<i>Firm Importance</i>	-0.287 (0.416)	-0.387 (0.411)	-0.387 (0.399)	-0.344 (0.393)	-0.381 (0.374)	-0.379 (0.408)	-0.46 (0.372)	-0.428 (0.375)
<i>Communist Vote Share</i>	1.511* (0.914)	0.143 (1.106)	0.87 (1.065)	1.013 (1.029)				
<i>State Assembly Majority</i>					-0.525 (0.614)	-0.229 (0.783)	-0.292 (0.718)	-0.291 (0.722)
<i>Govt Vote Share</i>	1.300 (1.339)				0.909 (1.368)			
<i>Opposition Vote Share</i>		-2.871*** (0.804)				-2.881*** (0.726)		
<i>Vote Share Difference</i>			1.700** (0.705)				1.756*** (0.666)	
<i>Abs Vote Share Difference</i>				1.561** (0.637)				1.627*** (0.580)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Firms	239	239	239	239	239	239	239	239
Number of Firm-years	1579	1579	1579	1579	1579	1579	1579	1579

Table 9: Privatization with the Transfer of Management Control (1999-2003)

This table presents the results from estimating a Cox proportional hazard regression of the government's decision to sell majority stakes and transfer management control in 17 firms starting in 1999. The political variables are constructed using data from the 1999 federal elections and the variables are described in Table 3. Heteroscedasticity-robust standard errors, clustered at the state level, are in parentheses. *, ** denote statistical significance at the 10% and 5% levels, respectively.

	(1)	(2)	(3)	(4)	(5)
<i>Ln(Sales)</i>	0.169 (0.197)	0.161 (0.207)	0.234 (0.223)	0.167 (0.203)	0.200 (0.217)
<i>Profit/Sales</i>	-0.309 (0.251)	-0.304 (0.240)	-0.278 (0.229)	-0.280 (0.238)	-0.332 (0.251)
<i>Wages/Sales</i>	-3.767 (2.390)	-3.760 (2.327)	-4.347* (2.329)	-4.014* (2.180)	-4.161* (2.483)
<i>Ln (Per Capita Income)</i>	0.202 (0.442)	0.201 (0.477)	0.320 (0.518)	0.291 (0.531)	0.431 (0.557)
<i>Per Capita Income Growth</i>	-1.329* (0.734)	-1.357** (0.689)	-1.220* (0.725)	-1.371* (0.727)	-1.259* (0.734)
<i>Literacy</i>	3.557* (2.025)	3.954 (2.604)	3.939* (2.367)	5.034* (2.982)	1.408 (2.565)
<i>Urbanization</i>	-2.663 (1.736)	-2.835* (1.518)	-3.254** (1.622)	-3.584** (1.391)	-2.258 (1.849)
<i>Firm Importance</i>	-0.356 (0.893)	-0.410 (0.858)	-0.229 (1.036)	-0.490 (0.915)	-0.186 (0.769)
<i>Govt Vote Share</i>		0.630 (1.997)			
<i>Opposition Vote Share</i>			-4.650* (2.403)		
<i>Vote Share Difference</i>				2.422* (1.305)	
<i>Abs Vote Share Difference</i>					3.055 (2.580)
Industry FE	Yes	Yes	Yes	Yes	Yes
Number of Firms	223	223	223	223	223
Number of Firm-years	878	878	878	878	878

Table 10: Alternative Econometric Specifications

This table presents the results from estimating a Cox proportional hazard regression of the government's decision to privatize, covering fiscal years 1990-2004. Columns (1) – (4) includes dummy variables for firm size quintiles where size is measured by firm sales; Columns (5)-(6) winsorizes the firm specific variables at the 5th and 95th percentiles. The variables are described in Table 3. Heteroscedasticity-robust standard errors, clustered at the state level, are in parentheses. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	With Sales Quintile Dummies				Winsorized Firm-Specific Variables			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Ln(Sales)</i>	0.414** (0.195)	0.541*** (0.179)	0.500*** (0.184)	0.490** (0.197)	0.872*** (0.240)	0.965*** (0.237)	0.927*** (0.240)	0.919*** (0.238)
<i>Profit/Sales</i>	-0.012 (0.060)	-0.021 (0.061)	-0.02 (0.063)	-0.018 (0.059)	1.851* (1.038)	1.986* (1.070)	1.823* (1.053)	1.892* (1.101)
<i>Wages/Sales</i>	-1.953 (1.337)	-2.232* (1.291)	-1.995 (1.234)	-2.027 (1.410)	-2.361 (1.873)	-2.299 (1.851)	-2.178 (1.795)	-2.305 (1.966)
<i>Ln (Per Capita Income)</i>	0.294 (0.446)	0.348 (0.525)	0.316 (0.489)	0.396 (0.526)	0.245 (0.480)	0.293 (0.557)	0.26 (0.528)	0.314 (0.533)
<i>Per Capita Income Growth</i>	-0.299 (0.545)	-0.157 (0.615)	-0.221 (0.588)	-0.212 (0.623)	-0.31 (0.499)	-0.197 (0.565)	-0.248 (0.547)	-0.245 (0.562)
<i>Literacy</i>	2.691* (1.420)	2.338** (1.040)	2.472** (1.094)	2.348** (1.138)	2.864** (1.324)	2.395** (0.999)	2.596** (1.043)	2.522** (1.115)
<i>Urbanization</i>	-1.863** (0.777)	-1.412** (0.677)	-1.688** (0.678)	-1.640** (0.731)	-1.926*** (0.569)	-1.396** (0.556)	-1.739*** (0.509)	-1.671*** (0.544)
<i>Firm Importance</i>	-0.296 (0.435)	-0.322 (0.430)	-0.372 (0.415)	-0.344 (0.412)	-0.613* (0.367)	-0.632 (0.393)	-0.698* (0.358)	-0.639* (0.356)
<i>Govt Vote Share</i>	0.827 (1.384)				0.743 (1.156)			
<i>Opposition Vote Share</i>		-2.546*** (0.775)				-2.580*** (0.647)		
<i>Vote Share Difference</i>			1.556** (0.746)				1.526** (0.661)	
<i>Abs Vote Share Difference</i>				1.714** (0.680)				1.380** (0.580)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Firms	239	239	239	239	239	239	239	239
Number of Firm-years	1579	1579	1579	1579	1579	1579	1579	1579

Table 11: Largest States

This table presents the results from estimating a Cox proportional hazard regression of the government's decision to privatize, covering fiscal years 1990-2004, where the sample is restricted to the largest 15 states. The variables are described in Table 3. Heteroscedasticity-robust standard errors, clustered at the state level, are in parentheses. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)
<i>Ln(Sales)</i>	0.601*** (0.159)	0.707*** (0.155)	0.668*** (0.153)	0.684*** (0.167)
<i>Profit/Sales</i>	0.239 (0.164)	0.257 (0.167)	0.236 (0.154)	0.242 (0.174)
<i>Wages/Sales</i>	-2.758 (1.890)	-2.97 (1.922)	-2.724 (1.774)	-2.796 (1.999)
<i>Ln (Per Capita Income)</i>	1.216* (0.634)	1.336** (0.615)	1.327** (0.632)	1.320** (0.630)
<i>Per Capita Income Growth</i>	-1.612*** (0.556)	-1.386** (0.575)	-1.507*** (0.571)	-1.440** (0.595)
<i>Literacy</i>	2.657* (1.526)	2.726** (1.216)	2.821** (1.235)	2.278* (1.255)
<i>Urbanization</i>	-2.199*** (0.723)	-1.799** (0.749)	-2.125*** (0.744)	-2.051*** (0.738)
<i>Firm Importance</i>	-0.243 (0.367)	-0.03 (0.292)	-0.165 (0.287)	-0.212 (0.304)
<i>Govt Vote Share</i>	1.608 (1.030)			
<i>Opposition Vote Share</i>		-2.982*** (0.666)		
<i>Vote Share Difference</i>			1.949*** (0.516)	
<i>Abs Vote Share Difference</i>				1.929*** (0.680)
Industry FE	Yes	Yes	Yes	Yes
Number of Firms	188	188	188	188
Number of Firm-years	1222	1222	1222	1222

Table 12: Effect of Privatization on Firm Performance

This table presents the results from a pooled instrumental variable regression to analyze the effect of privatization on firm performance. Panel A reports results from the second-stage regressions with firm performance measures as the dependent variables. Panel B reports the first stage probit regression results where the dependent variable, *Privatized*, is equal to one if the firm is privatized by the government in power. The performance change variables measure the change in firm-level characteristics from the most recent year before the government is elected to the year immediately after it loses the elections. The dependent variables are *Sales Growth* ($\ln(\text{Sales}_{1996}/\text{Sales}_{1990})$, $\ln(\text{Sales}_{2004}/\text{Sales}_{1998})$), and the remaining variables are similarly constructed. If a firm is privatized by a previous government, it is not included for performance evaluation in the subsequent period. The remaining variables are as described in Table 3. Standard errors are robust to clustering at the firm level. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Second Stage Regressions with Firm Performance

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	<i>Sales Growth</i>	<i>Asset Growth</i>	<i>Net Fixed Assets Growth</i>	<i>Change in Profit</i>	<i>Change in Profits per sales</i>	<i>Change in Profits per wages</i>	<i>Change in R&D per sales</i>
<i>Privatized</i>	0.663* (0.402)	0.373** (0.178)	0.511* (0.271)	5.062** (2.378)	2.160* (1.254)	4.435* (2.331)	0.004* (0.002)
<i>Ln(Sales)</i>	-0.127 (0.080)	-0.020 (0.029)	0.002 (0.042)	-1.204* (0.619)	-0.297 (0.243)	-0.973* (0.498)	-0.000 (0.000)
<i>Profit/Sales</i>	-0.064 (0.098)	-0.003 (0.052)	-0.077 (0.049)	1.336 (1.007)	1.281* (0.726)	3.248** (1.320)	-0.000 (0.000)
<i>Wages/Sales</i>	-0.022 (0.146)	-0.013 (0.074)	-0.136** (0.068)	1.815 (1.281)	2.371*** (0.866)	2.984** (1.465)	-0.003* (0.001)
<i>Ln (Per Capita Income)</i>	0.045 (0.089)	-0.023 (0.034)	-0.049 (0.076)	-0.573 (0.425)	-0.242 (0.276)	0.169 (0.904)	-0.001 (0.001)
<i>Per Capita Income Growth</i>	0.046 (0.106)	-0.111 (0.104)	-0.144 (0.183)	-0.733 (0.625)	-0.023 (0.348)	-1.464 (1.127)	0.001* (0.001)
<i>Literacy</i>	-0.780 (0.627)	0.313 (0.368)	0.946** (0.445)	-3.225 (3.576)	-0.385 (1.772)	-5.444 (4.257)	-0.002 (0.004)
<i>Urbanization</i>	0.175 (0.418)	0.102 (0.192)	0.039 (0.248)	4.198* (2.410)	0.163 (1.243)	4.460 (2.870)	0.003* (0.002)
Constant	1.184* (0.647)	1.083** (0.431)	0.905 (0.651)	10.456* (5.778)	1.248 (1.950)	7.970 (6.510)	0.001 (0.003)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Firm-years	287	292	292	289	284	289	285

Table 12, Panel B: First Stage Regression

This table presents the results from the first stage of a pooled instrumental variable regression to analyze the effect of privatization on firm performance. Panel B reports the first stage probit regression results where the dependent variable, *Privatized*, is equal to one if the firm is privatized by the government in power. The instrumental variables for the privatization decision are *Vote Share Difference* and *Privatization Eligible*, which is a dummy variable that takes the value of one if the firm were profitable in 1988-1990 so it was eligible for a stock market listing at the beginning of the Congress era in 1991. The latter variable is set equal to one for all the firms in the BJP (1999-2003) era since firms were privatized through private asset sales during this period. The remaining variables are as described above and in Table 3. Standard errors are robust to clustering at the firm level. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel B: First Stage Probit	
<i>Vote Share Difference</i>	2.586*** (0.744)
<i>Privatization Eligible</i>	0.960** (0.396)
<i>Ln(Sales)</i>	0.761*** (0.150)
<i>Profit/Sales</i>	0.113* (0.062)
<i>Wages/Sales</i>	-1.623 (1.082)
<i>Ln (Per Capita Income)</i>	0.565 (0.585)
<i>Per Capita Income Growth</i>	0.561 (0.563)
<i>Literacy</i>	2.319 (1.595)
<i>Urbanization</i>	-2.598*** (0.866)
<i>Firm Importance</i>	-0.398 (0.398)
<i>Constant</i>	-8.690** (4.418)
Industry FE	Yes
Year FE	Yes