

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 a unique firm-level data set from India. The results show that larger, more profitable firms are more likely to be privatized early. 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 regions where the governing party faces more political competition from parties in opposition. These results are robust to political ideology; industry and time effects; and state-level differences in income, literacy, and growth opportunities. Further, 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 across the world (Megginson and Netter (2001)), has improved the performance of government-owned firms (La Porta and Lopez-de-Silanes (1999), Gupta (2005) among others), and facilitated the development of financial markets (Megginson, Nash, Netter, and Poulsen (2004)). Yet, governments still own a substantial number of firms across the world (Megginson (2005)). Given the documented benefits, why are there widespread delays in privatization, 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.¹ 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 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.

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 employees of local government-owned firms. Cross-country public opinion surveys suggest that the privatization of government-owned firms may also be perceived negatively by the population as an inequitable transfer of publicly-owned assets to private owners (Nellis (2003)).² 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

¹ 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).

² Attributing the defeat of the National Democratic Alliance (NDA) government in the 2004 Indian elections to its disinvestment (privatization) policy a newspaper editorial opined, "The Indian voters ... were rejecting the National Democratic Alliance government, which, as one poll slogan had it, stood for the "National Disinvestment Agency" ("Mass Media vs Mass Reality," The Hindu, May 14, 2004).

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.

To study the financial and political determinants of privatization 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 unique 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.

To investigate the role of politics we collect state-wise electoral data on all federal elections held since the start of the privatization program in 1991.³ Using India as the empirical context for studying the politics of a financial market reform 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 each of the four elections held between 1991 and 1999. 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 states. Most Indian states are more populous than the average nation, and there is significant variation in voter support for the different political parties across the states.

The results suggest that, similar to the IPO decision of private firms, larger and more profitable firms are more likely to be privatized. However, unlike private firm IPOs, political factors play an important role in privatization. We find that the rate of privatization is significantly faster if the firm is located in a state where the governing party and its allies won a large proportion of the seats in the federal parliamentary elections. Privatization is significantly delayed if a firm is located in a state where the governing and opposition party alliances are in a close race and won a similar proportion of seats to parliament. For example, the rate of privatization is more than 2 times higher for a firm located in a state where the governing party alliance wins 100% of the seats to parliament, compared to a firm located in a state where the governing and opposition party alliances each win 50% of the seats. Rather than rewarding a supportive electorate, it appears that the government acts to minimize the effects of a political

³ The elections to the federal government were held in 1991, 1996, 1998, 1999, and 2004.

backlash by delaying privatization in states where it has weak voter support or faces more competition from the opposition. Thus, the dispersed benefits and concentrated costs of privatization appear to significantly influence the pattern of firm sales.

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, the results are robust to using data from the most recent elections whether at the state or the federal government level. Third, we show that our results are not a proxy for state-level differences in income, education, and growth opportunities, and are robust to excluding small states. 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 conservative Bharatiya Janata Party. Also, political competition continues to matter when we control for the strength of anti-privatization leftist parties in a state. Finally, we show that our results are robust to the method of privatization, listing restrictions on the stock market, non-linearity in firm size, alternative measures of political competition, and alternative samples.

Using the political strength of the government in a state as an instrumental variable for the decision to privatize a firm located in that state, we show that privatization leads to a significant increase in the sales and profitability and a decrease in the wage expenses of firms. While there is a large literature that investigates the impact of privatization on firm performance using cross-country data (Megginson and Netter (2001), Megginson (2005)) and firm-level data on India (Gupta (2005)), this is the first study to use electoral variables as an instrument for the privatization decision. Political variables may also be useful for identifying the economic impact of other endogenous financial reforms, such as bank deregulation and foreign investment liberalization which may have an electoral impact.

Since politicians obtain private benefits from controlling government-owned firms (Shleifer and Vishny (1994), Boycko, Shleifer, and Vishny (1996), and Dinc (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 growing theoretical and empirical literature on the role of political institutions in privatization. In particular, Perotti (1995) develops a model to show that governments may retain a passive stake in companies to signal to investors their commitment to not implement policies adverse to the firm; and Biais and Perotti (2002) argue that conservative governments are more likely to privatize to induce median class voters to buy enough shares to shift political preferences away from left wing parties.

Among empirical studies of privatization, Jones, Megginson, Nash, and Netter (1999) show that governments adopt strategic sale methods that are consistent with political objectives; Megginson, Nash, Netter, and Poulsen (2004) examine the choice of privatizing through sales in public versus private capital markets and find that share issue privatizations are more likely for profitable firms, and in countries with less developed financial markets and more minority shareholder protections; and Bortolotti and Pinotti (2006) find that privatization is delayed in democracies with proportional electoral systems. These studies provide insight into how cross-country differences in political institutions can explain why some countries privatize more than others, or adopt different methods of privatization. Using data from India, Dastidar, Fisman, and Khanna (2007) find evidence suggesting that there is policy irreversibility in privatization. Firms that were fully privatized did not experience a significant price decline relative to private firms following the 2004 election "surprise" where the incumbent Bharatiya Janata Party lost. Our focus is different: we study why governments choose to privatize some firms and not others.⁴

Our paper is related to Clarke and Cull (2002) who find that poor performance and surplus employment increases the likelihood of bank privatization in Argentina, while the political affiliation of the provincial government does not have a robust impact on the probability of privatization. Our paper differs in several ways. First, we focus on the role of political competition between governing and opposition parties in the privatization process. Second, we investigate political patronage arguments in privatization by identifying and connecting

⁴ The question of how a government maximizing revenues from privatization sales will sequence the sale of firms is investigated theoretically in an auction model by Chakraborty, Gupta, and Harbaugh (2006), and empirically by Gupta, Ham, and Svejnar (2005).

politicians to the firms they control. Third, we analyze all non-financial, government-owned firms in India, rather than a single industry.

Our paper is also related to the literature on the politics of financial and economic reforms. Kroszner and Strahan (1999) investigate the influence of interest groups on the pattern of banking sector deregulation across U.S. states; and Brown and Dinc (2005) show the role of politics in the government's decision to intervene in failing banks in emerging markets. Motivated by Grossman and Helpman (1994), empirical work by Goldberg and Maggi (1999) and Gawande and Bandyopadhyay (2000) investigates the relationship between the monetary contributions to politicians and policy outcomes. Note that such a relationship cannot be analyzed with our sample because corporate political contributions are illegal in India and tend to be made under the table.

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

2. Background on Privatization and the Political System in India

2.1 *Government-owned Firms*

Government ownership of firms in India was originally 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)). The size of the state sector has increased in recent years. In 2000 these firms accounted for approximately one-fourth of GDP and more than two-fifths of the total capital stock in India.

Federal government-owned 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. These firms are large employers accounting for 10% of the total workforce in the organized sector.⁵ They also tend to be

⁵ The total workforce in registered companies was estimated at 27 million in 1997 (Department of Disinvestment, 2001).

overstaffed. According to the government's own numbers, the average ratio of wages to sales between 1990 and 1998 was 18.9% among government-owned manufacturing firms, more than twice that of private manufacturing firms during the same period (Department of Disinvestment (2001)). 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. Between 1990 and 1998, while the ratio of profits after tax to sales averaged -4.4% for government-owned manufacturing firms, profits after tax to sales averaged 6.7% among private manufacturing firms (Department of Disinvestment (2001)).

Individual state governments own approximately 941 firms, primarily in the power and agricultural sectors. Only a handful of state governments have launched privatization programs and that too with limited success. We focus on firms owned by the federal government because these account for about 85% of the total assets of all government-owned companies.

In response to a balance of payments crisis in 1991, India undertook sweeping economic reforms that included deregulation and privatization. Out of nearly 300 firms owned by the federal government, just 50 firms were privatized between fiscal years 1991 and 2004.⁶ The Congress government, which was in power between fiscal years 1991 and 1995, undertook partial privatizations where it sold minority equity stakes in 39 firms without transferring management control. The privatization methods adopted by the Congress government included auctions and public offerings in domestic markets. Although the government continued to hold the majority of shares, these firms became subject to monitoring by minority shareholders and to the transparency and disclosure requirements of being listed on the stock market (Gupta (2005)). 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 privatization. Throughout we will define privatization as the first sale of equity in a government-owned firm to private owners.

The majority of the privatizations undertaken by successive Indian governments involved the sale of minority equity stakes on domestic and international stock markets - a common strategy adopted by governments around the world (LaPorta, Lopez de Silanes, and Shleifer (2002), and Boubakri, Cosset, and Guedhami (2005)). Gupta (2005) shows that partial privatization has a significant positive impact on the profitability of Indian firms, and that

⁶ Fiscal year t starts in April of calendar year t and runs through March of calendar year $t+1$.

partially privatized firms are also more likely to sell majority stakes later. Hence, politicians have an incentive to resist partial privatizations because these firms are likely to be candidates for eventual majority sales.

Following the defeat of the Congress government in 1996, the privatization program remained in hiatus until the election of the Bharatiya Janata Party (BJP) to the national government in 1999.⁷ Between 1999 and 2003, the BJP government privatized 10 firms that had not previously sold equity. The privatizations undertaken by the BJP government also 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. The control transfer privatizations are also considered separately as a robustness check. The last privatization sale was conducted in 2004 by the new Congress government.

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. 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.

On average, about 450 political parties participate in the national 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 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

⁷ 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 also sold equity stakes between the years 1991 and 1996 we do not include the privatizations undertaken in 1996-1998 in the regression analysis.

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 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, following which the center-left Janata Dal party led coalition formed a government 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.

There is considerable heterogeneity in the ideology of the different governments elected between 1991 and 2004. For example, both the center-left Congress party and the conservative BJP governed during this period.

3. Financial and Political Determinants of 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. 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 are never privatized. The discussion below is summarized in Table A1.

A. Financial Factors

A.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. If adverse selection also arises in the privatization context we expect a positive relationship between firm size and the likelihood of privatization.

A.2 Firm Profitability

Since the late 1980s, governments have raised more than \$1 trillion through privatization sales (Megginson and Netter (2001)). The Indian government raised nearly 900 billion INR between 1991 and 1995, or about \$2.2 billion at the current exchange rate (Department of Disinvestment (2001)). Moreover, proceeds from privatization generally flow to the divesting government rather than being reinvested in the privatizing firms (Megginson (2005)). In India, for example, the proceeds are used to pay down the budget deficit. It has also been shown in the literature that privatizing profitable firms first may increase sale proceeds (Megginson, Nash, Netter, and Poulsen (2004) and Gupta, Ham, and Svejnar (2005)). Therefore, if raising money from privatization sales is a motivating objective for the government, we expect a positive relationship between firm profitability and the likelihood of privatization.

A government that has initiated a privatization program may also be concerned about building popular support for the process. The financial success of initial privatization sales may be especially important to build credibility and encourage investor participation in the future (Dewenter and Malatesta (1997), Megginson, Nash, and van Randenborgh (1994), Megginson, Nash, Netter, and Poulsen (2004), and Chakraborty, Gupta, and Harbaugh (2006)). Therefore, to

increase public and investor support for privatization, governments may prefer to privatize the more profitable firms first (Megginson, Nash, Netter, and Poulsen (2004)).

Governments may also be interested in improving the efficiency of firms through privatization. The majority of studies have found that privatization leads to efficiency improvements in government-owned firms across the world (Megginson and Netter (2001)), including India (Gupta (2005)). It has also been shown that efficiency improvements are greatest in the least efficient firms (Claessens, Djankov, and Pohl (1997) and Frydman, Gray, Hessel, and Rapaczynski (1999)). If improving firm efficiency is a consideration in the government's decision to privatize then we expect a negative relationship between the probability of privatization and firm profitability. Hence, the relationship between firm profitability and the privatization decision is likely to depend on the relative emphasis placed by the government on increasing sale proceeds and public support, as opposed to improving firm efficiency.

B. 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.

B.1 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 government-owned firms (Shleifer and Vishny (1994), Boycko, Shleifer, and Vishny (1996), and Dinc (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, 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 whether political patronage plays a role in the privatization decision, 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.

B.2 Political Strength

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 local government-owned enterprise workers, or because of negative public perceptions about privatization. It follows that the governing party may prefer to privatize firms that are located in regions where it has more voter support and can withstand the effects of a potential political backlash. 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.⁸ Hence, the question of the effect of the governing party's political strength on the privatization decision is an empirical one.

B.3 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 state 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 state. 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 states where the governing party faces strong competition from the opposition.

⁸ For example, Sapienza (2004) finds that government-owned banks in Italy provide loans with lower interest rates in the regions where the party that controls the banks enjoys strong voter support.

4. Data

We observe the identity of 280 manufacturing and non-financial service sector companies owned by the federal government of India. Financial data is available for 259 firms from which we exclude three companies located in the state of Jammu and Kashmir where the elections were not held due to political unrest. The remaining panel is unbalanced. The data was collected by the Centre for Monitoring the Indian Economy (CMIE) from company reports.

The data used in the 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).⁹ Data on privatization transactions were obtained from the Disinvestment Commission of the Government of India, the World Bank Privatization Transactions Database, and from news sources. Data on the location of the main operations or main plant 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 state. 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 100% 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 non-privatized firms 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 are not privatized 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. Government-owned firms have an average ratio of earnings before interest, tax, depreciation, and amortization (*EBITDA*) to *Sales* equal to -7.5%. However, privatized companies have positive earnings with an average ratio of *EBITDA* to *Sales*

⁹ We observe balance sheet data starting in 1987, which we use to control for listing restrictions on the stock market in the robustness check section below.

equal to 15.5% compared to -9.8% for companies that are not privatized, with the difference being statistically significant at the 1% level. 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.

We collect state-level data on the electoral performance of all the national and regional political parties in all the elections to the federal government held since the start of the privatization program, from the Election Commission of India, the regulatory agency in charge of conducting the elections.¹⁰ Information on which parties belong to the main alliances is obtained from press sources and election websites. We also collect data on all 107 elections to state legislative assemblies that took place in the most recent year before 1991, and upto 2005 and use these data as a robustness check for our main results.

India has a majoritarian electoral system in which the candidate in each 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 party and political competition between the governing and opposition parties. First, as a measure of the political strength of the governing party in a state, we use the proportion of seats in parliament won from a state by the governing party alliance in the most recent elections to the federal parliament (*Govt Seat Share*). To measure the political strength of the largest opposition party in a state, we use the proportion of seats in parliament won from a state by the main opposition party alliance in the most recent elections to the federal parliament (*Opposition Seat Share*). Specifically, these variables are constructed as the number of seats won by a party alliance in a state divided by the total number of seats allotted to that state in the federal parliament. Note that although the two variables are related, *Opposition Seat Share* is not equal to $1 - \text{Govt Seat Share}$ because there are other political parties who contest and win seats from each state.

To measure the extent of political competition between the governing and the main opposition party alliances in a state we define *Abs Seat Share Difference* as the absolute value of the difference between *Govt Seat Share* and *Opposition Seat Share*. A higher value of this

¹⁰ Our analysis is at the state rather than the district level because we observe the location of the main operations of firms by state.

variable indicates that either the governing party alliance is far ahead or it is far behind the opposition party alliance in that state. The variable will take on a smaller value if the two party alliances win a similar number of seats to Parliament from that state. Thus, a smaller value of *Abs Seat Share Difference* indicates a more competitive race between the governing and opposition party alliances.

As a robustness check we also use several alternative measures of political strength and competition. These include the difference between *Govt Seat Share* and *Opposition Seat Share*, *Seat Share Difference*, which assumes a higher value in states where the governing party alliance is ahead of the opposition party alliance; the vote shares received by the governing and opposition party alliances in each state, *Govt Vote Share* and *Opposition Vote Share*, respectively; and the difference and absolute value of the difference between these two variables, *Vote Share Difference* and *Abs Vote Share Difference*, respectively. We also construct the political variables using data from the most recent election, whether at the federal or the state level, and use these as a robustness check for the main variables.

Table 2 provides the number of government-owned and privatized firms for each state where the main operations of the firms in our sample are located. It also provides summary statistics of the political variables for each state averaged across all the federal elections held since 1991. Note that the identities of the governing and the opposition party alliances changed between the different election cycles. In Table 3 we report the sample statistics of the political strength and competition measures across firms, where each firm is matched with a state based on the location of its main operations. The sample statistics are suggestive. We find that privatized firms tend to be located in states where the governing party alliance received a significantly higher share of seats and votes, and in states where the governing and opposition party alliances are not in a close race.

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 to the cabinet minister who has jurisdiction over that firm. We collect this data for the tenure of the first Congress government, between 1991 and 1996. The identity and the home state of the cabinet ministers are obtained from the Election Commission of India to determine whether a firm's main operations are located in the home state of the minister in charge of that firm. 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 276, while the Ministry of Petroleum and Natural Gas controls 21 companies.

5. Results

5.1 Political Patronage

If the politician with jurisdiction over a firm is 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 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 4. During the tenure of the government in power between 1991 and 1996, the home state of the cabinet minister in charge of a firm matches the state where the firm's main operations are located in 17 cases. Interestingly, 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 10% 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.

5.2 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 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 the public. 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. All the firm-specific variables are winsorized at the 5th and 95th percentiles to mitigate the effect of outliers. Notice that another advantage of the Cox proportional hazard model is that the coefficient estimates are robust to any baseline hazard function $h_0(t)$. This implies that the specification h is robust to any time-specific common factors so that year fixed effects are redundant. The regressions also include industry fixed effects. Thus, the framework incorporates the fact that in some industries and in some years there are no privatizations. Finally, 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.

5.2.1 *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 *EBITDA* 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 5 we note that larger, more profitable firms with lower wages are significantly more likely to be privatized early. For example, from column (1) we note that the rate of privatization is more than 9 times higher for a firm in the 75th percentile of sales compared to a firm in the 25th percentile of sales.¹¹ In the case of profitability, the rate of privatization is 84% higher for a firm in the 75th percentile of *EBITDA/Sales* relative to a firm in the 25th percentile, and in the case of *Wages/Sales* the rate of privatization is 69.9% lower for a firm in the 75th percentile relative to a firm in the 25th percentile of *Wages/Sales*.

¹¹ The value of *Sales* in the 25th percentile is equal to 166 million INR and in the 75th percentile is equal to 2,726 million INR. The value of *EBITDA/Sales* is equal to -0.09 in the 25th percentile and 0.213 in the 75th percentile. The value of *Wages/Sales* is equal to 0.099 in the 25th percentile and 0.446 in the 75th percentile.

The size result is consistent with the hypothesis that larger firms face lower information costs and are therefore more likely to issue equity. By selling profitable firms early it appears that governments placed a greater emphasis on increasing sale proceeds and building public support for privatization than on achieving efficiency improvements. 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.

5.2.2 Political Strength and Competition

Examining the role of political costs in the privatization decision, we note from column (2) of Table 5 that the coefficient of *Govt Seat Share*, which is the proportion of seats in parliament won by the governing party alliance in a state in the most recent federal election, is positive and statistically significant at the 5 percent level. Thus, privatization is more likely to be delayed if the firm is located in a state where the governing party has weak voter support. From column (2) of Table 5 we note that the rate of privatization is 70.5% higher for a firm located in the 75th percentile of *Govt Seat Share* (Andhra Pradesh in 1999 with *Govt Seat Share* equal to 86%) versus a firm located in a state in the 25th percentile of *Govt Seat Share* (West Bengal in 1991 with *Govt Seat Share* equal to 12%).

From column (3) of Table 5 we note that *Abs Seat Share Difference*, which is the absolute value of the difference between the proportion of seats won by the governing and opposition party alliances in a state in the most recent election, has a positive coefficient that is statistically significant at the 10 percent level. This result suggests that privatization is more likely to be delayed in states where the governing party faces a close election, compared to states where the governing party enjoys either strong or little support. For example, from column (3) of Table 5 we note that for a firm located in the 75th percentile of *Abs Seat Share Difference* (Haryana in 1991 with *Abs Seat Share Difference* equal to 90%), the rate of privatization is 63.5% higher compared to a firm located in the 25th percentile (Rajasthan in 1999 with *Abs Seat Share Difference* equal to 28%), and it is more than 2 times higher compared to a firm located in a state where the governing and opposition party alliances were in a close race and won 50% of the seats each (Himachal Pradesh in 1991).

We also investigate whether the political variables are a proxy for state-level political considerations. For example, the federal government's decision to privatize a firm may be

influenced by the electoral impact of this decision on the government in power at the state level where the firm is located. We include a dummy variable, *State Govt Majority*, which is equal to one if the governing party in the federal parliament is also the governing party in the state legislature. From the results reported in columns (4) and (5) of Table 5 we note that *State Govt Majority* has a negative sign, although the coefficient is not statistically significant. Note that both *Govt Seat Share* and *Abs Seat Share Difference* retain their sign and significance in columns (4) and (5).

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 privatizing firms that are located in states where the governing party does not face a competitive race. 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 governing party, and competition between the governing and opposition parties in the state where the main operations of the firms are located.

6. Robustness Checks

6.1 Additional Measures of Political Competition

We check the robustness of the results to alternative definitions of political competition. From the results reported in Panel A of Table 6 we note that privatization is likely to be significantly delayed in states where the proportion of seats won by the opposition party alliance is high (*Opposition Seat Share*), and in states where the governing party alliance wins a lower proportion of seats than the opposition party alliance (*Seat Share Difference*). Using vote shares instead of seat shares in columns (3)-(6) we note that with the exception of *Govt Vote Share*, the results are similar in sign and significance to those reported in Table 5.

6.2 State Government Elections

In some years and for some states, elections to the state legislatures may not coincide with the federal election. We construct the political variables using data from the most recent elections, whether at the federal or state level, for each state. These variables would provide the most recent measure of voter support in a state. From the results reported in Table 6, Panel B we

note that the coefficients of the political variables retain their sign and significance, suggesting that the political results are robust to using more recent data from state government elections.

6.3 *Regional Characteristics*

We investigate whether the electoral results may be a proxy for state-level demographic characteristics such as income levels (per capita state income), growth opportunities (% change in per capita state income), and literacy (% of state population that is literate). For example, relative to high growth and high income states, states that face declining growth prospects or are low income may be opposed to the potential loss of stable government jobs following privatization. From the results reported in columns (1) and (2) of Table 7 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 states with a more literate population, suggesting that more educated voters may favor market reforms. Note that the political strength and competition results remain robust to these differences in state-level characteristics.

We also investigate whether the political results are robust to restricting the sample to the 16 Indian states with the largest number of government-owned firms.¹² From the results reported in columns (5) and (6) of Table 7 we note that the coefficients of the political variables retain their sign and are more statistically significant than the results obtained for the larger sample as reported in Table 5.

6.4 *Strength of Anti-Privatization Leftist Parties*

Our results are robust to alternative political ideologies since the privatizing governments include the ideologically center-left Congress party and the conservative BJP-led government. We also check whether the strength of the leftist parties, which have consistently opposed privatization, has an impact on the decision to privatize. The results are reported in columns (3) and (4) of Table 7. *Leftist Seat Share*, defined as the proportion of seats won by the communist and socialist parties in a state, does not have a significant impact on the likelihood of privatization. Note that the coefficients of *Govt Seat Share* and *Abs Seat Share Difference* remain positive and statistically significant, suggesting these results are not driven by the political ideology of the governing or opposition parties.

¹² We thank the referee for this suggestion.

6.5 Privatization Method and Alternative Samples

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 restrict the sample to control transfer privatizations, which were all undertaken between 1999 and 2003. In Table 8, Panel A we report the results from a cross-sectional probit specification where the dependent variable is equal to one if the firm was privatized and transferred management control. The results show that the probability of a control transfer privatization is significantly lower if the firm is located in a state where the opposition party won a larger proportion of seats (*Opposition Seat Share*), or in a state where the governing party won fewer votes than the opposition (*Vote Share Difference*). Privatization is also significantly less likely if the firm is located in a state where the governing and opposition parties are in a close race, as measured by the absolute value of difference in the vote shares (*Abs Vote Share Difference*). The other political variables have the same sign as before but lack statistical significance due to the small sample of control transfer privatizations.

Another issue is whether non-linearity in firm size may affect the political results. To investigate we include dummy variables for quintiles of firm sales in the specification. Results from a Cox proportional hazard specification reported in columns (1) and (2) of Table 8, Panel B show that the political strength and political competition measures, *Govt Seat Share* and *Abs Seat Share Difference* respectively, retain their sign and significance.

We also check the robustness of our results to stock market listing requirements. 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. The results reported in columns (3) and (4) of Table 8, Panel B show that both *Govt Seat Share* and *Abs Seat Share Difference* retain their sign and are significant at the 5% level in this smaller sample.

Lastly, in columns (5) and (6) of Table 8, Panel B we report the results from a Cox proportional hazard specification where the firm-specific variables are not winsorized. Once again, the results are robust.

7. Impact of Privatization on Firm Performance

We find that larger, more profitable firms 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):

$$\begin{aligned} \Pr(\text{Privatized}_i = 1) &= \Phi(\alpha_0 + \alpha_1 \text{Govt Seat Share}_i + \alpha_2 X_i + \varepsilon_{it}) \\ Y_i &= \beta_1 \text{Privatized}_i + \beta_2 X_i + \varepsilon_i \end{aligned} \quad (2)$$

where X_i are firm-specific controls and Y_i measures changes in firm performance after privatization relative to before privatization. The control group is firms that have not been privatized. In the first stage, we estimate a probit regression where the dependent variable *Privatized* is equal to one if the firm is privatized by either the Congress or the BJP governments, using *Govt Seat Share* as the instrumental variable. The first stage regression also includes firm sales, profits, and the ratio of wages to sales. From the results reported in Panel B of Table 9 we note that *Govt Seat Share* has a significant and positive impact on the probability of privatization.

In the second stage, we investigate the impact of privatization on firm performance. 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 in the year immediately after the end of the government's term (1996 for Congress and 2004 for BJP) to firm sales in the year prior to the beginning of the government's term (1990 for Congress and 1998 for BJP). We measure the change in profits and workforce size over the same period.

From the results reported in Panel A of Table 9 we note that relative to firms that remain fully government-owned, privatized firms experience a significant increase in sales and profit following privatization (at the 1 per cent level) and a significant decrease in the ratio of wage expenses to sales (at the 10 per cent level). 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 profitability and efficiency of 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 a unique dataset on Indian government-owned firms, which includes both privatized firms and firms that are never privatized we find that the decision to privatize depends on both financial characteristics and political factors.

Consistent with the findings of the literature on IPOs by private firms, the results suggest that larger and more profitable firms are more likely to be privatized early. Unlike IPOs by private firms, we find that political factors also 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 local 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 public backlash could reduce voter support for the governing party in the state where the privatized firm is located. The effects of a backlash on electoral outcomes are likely to be more severe if the governing party faces a close race with other political parties in that state.

The results show that privatization is more likely to be delayed if the main operations of a firm are located in a region where the governing party alliance won fewer seats than the opposition party alliance in the elections to the federal government, or in a region where the governing and opposition party alliances face a close race. These results are 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. These 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 specifications and samples.

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 a random decision but reflects a political equilibrium as well as firm characteristics. Specifically, we show that political variables may be used to identify the impact of privatization on firm performance.

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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).
<i>Profitability</i>	<p>Sale proceeds from privatization may be higher if the firms are more profitable (Gupta et al., 2005).</p> <p>To build support for privatization the government may prefer to sell better performing firms (Dewenter and Malatesta, 1997; Megginson et al., 1994; Megginson et al., 2004; Chakraborty et al., 2006).</p> <p>Efficiency improvements are highest for the least efficient firms (Claessens et al., 1997; Frydman et al., 1999).</p>
<i>Political Factors</i>	
<i>Political Patronage</i>	Politicians obtain private benefits from controlling government-owned firms, such as securing jobs for supporters (Shleifer and Vishny, 1994; Boycko et al., 1996; and Dinc, 2005). These benefits may be a greater priority if a firm is located in the state from which the politician with jurisdiction over that firm is elected.
<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 (Nellis, 2003). So the government may lose votes in the region where the privatized firm is located.
<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.

Table 1. Comparing Privatized and Fully State-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; Standard deviations are in parentheses. All the firm-level variables are winsorized at 5th and 95th percentile 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 test comparing privatized firms to firms that are not privatized.

Variables	<i>Privatized</i>	<i>Not Privatized</i>	All
<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. Proportion of Seats Won by the Governing and the Opposition Party Alliance by State

This table provides state-wise data on the number of privatized and state-owned firms and the proportion of seats from each state to the federal parliament won by the governing and opposition party alliances averaged across 5 federal elections held in 1991, 1996, 1998, 1999, and 2004. The proportions may not add up to 100 if other political parties have won seats. *Govt Seat Share* is the proportion of seats in the federal parliament won from a state by the governing party coalition out of the total seats allocated to that state in the federal parliament; *Opposition Seat Share* the proportion of seats in the federal parliament won from a state by the main opposition party coalition out of the total seats allocated to that state in the federal parliament; *Seat Share Difference* and *Abs Seat Share Difference* are the difference and the absolute value of the difference respectively between *Govt Seat Share* and *Opposition Seat Share*.

State	Governing Party Alliance (<i>Govt Seat Share</i>)	Opposition Party Alliance (<i>Opposition Seat Share</i>)	Difference (<i>Seat Share Difference</i>)	Absolute value	Number of Privatized Firms	Number of SOEs	Number of Firm- Years
				of Difference (<i>Abs Seat Share Difference</i>)			
Andaman & Nicobar	62.5%	12.5%	50.0%	75.0%		1	8
Andhra Pradesh	59.4%	9.7%	49.7%	55.8%	4	19	199
Arunachal Pradesh	40.0%	0.0%	40.0%	40.0%		1	5
Assam	31.6%	37.8%	-6.1%	43.9%	2	8	54
Bihar	43.8%	19.7%	24.1%	29.6%		16	177
Delhi	58.2%	37.8%	20.4%	71.4%	10	44	383
Goa	70.8%	12.5%	58.3%	75.0%		1	12
Gujarat	44.2%	50.3%	-6.0%	51.1%	2	6	50
Haryana	75.7%	12.9%	62.9%	84.3%	1	5	36
Himachal Pradesh	64.3%	21.4%	42.9%	42.9%		2	27
Karnataka	56.4%	38.0%	18.4%	43.9%	3	16	127
Kerala	31.8%	20.0%	11.8%	51.8%	3	5	39
Lakshadweep	0.0%	100.0%	-100.0%	100.0%		1	2
Madhya Pradesh	56.3%	38.1%	18.2%	47.9%	2	8	67
Maharashtra	54.0%	32.6%	21.4%	48.5%	6	30	258
Meghalaya	50.0%	20.0%	30.0%	70.0%		1	10
Nagaland	0.0%	44.4%	-44.4%	44.4%		1	9

Table 2 continued

Orissa	63.6%	11.9%	51.7%	61.9%	3	8	66
Pondicherry	62.5%	0.0%	62.5%	62.5%		1	8
Punjab	48.4%	28.0%	20.3%	57.7%	1	4	33
Rajasthan	44.0%	48.0%	-4.0%	26.9%		4	45
Sikkim	71.4%	0.0%	71.4%	71.4%		1	14
Tamil Nadu	72.0%	11.0%	61.0%	61.0%	5	12	79
Tripura	58.3%	0.0%	58.3%	58.3%		1	12
Uttar Pradesh	23.9%	36.6%	-12.7%	38.6%	4	23	195
West Bengal	26.4%	2.9%	23.5%	23.5%	3	40	450

Table 3. Comparing Political Data Across Privatized and Fully Government-Owned Firms

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. *Govt Seat Share* is the proportion of seats won from a state by the governing party out of all the seats allocated to that state, where the state is determined by the location of the firm's main operations. *Abs Seat Share Difference* is the absolute value of the difference between *Govt Seat Share* and the proportion of seats won by the main opposition party alliance; *Govt Vote Share* and *Abs Vote Share Difference* replace the proportion of seats won with the proportion of votes won by the two party alliances. Standard deviations are in parentheses. *, **, *** denote statistical significance at the 10, 5, and 1% levels, respectively, in a two-sided test of the mean with the privatized firms and the other government-owned firms.

Variables	Privatized	Fully Government-Owned	All
<i>GovtSeatShare (%)</i>	50.8* (33.0)	46.0 (34.1)	46.4 (34.0)
<i>OppositionSeatShare (%)</i>	26.8 (29.8)	23.8 (26.6)	24.0 (26.9)
<i>AbsSeatShareDifference (%)</i>	55.2*** (25.2)	47.4 (29.5)	48.0 (29.3)
<i>GovtVoteShare (%)</i>	39.3** (13.3)	37.3 (14.2)	37.5 (14.1)
<i>OppositionVoteShare (%)</i>	27.2 (16.0)	27.5 (14.5)	27.5 (14.6)
<i>AbsVoteShareDifference (%)</i>	19.4 (16.1)	17.8 (14.1)	17.9 (14.3)
Number of Firm-years	184	2121	2305

Table 4. The Role of Political Patronage in the Decision to Privatize

The 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. *Plant in Home State* is a dummy variable that is equal to one if the state where the firm's main plant is 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 10% level.

<i>Plant in Home State</i>	<i>Privatized</i>		Total
	No	Yes	
No	188	38	226
Yes	17	0	17
Total	205	38	243
Correlation	-0.118*		

Table 5. The Role of Financial Factors, Political Strength, and Political Competition in the Decision to Privatize

The 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. These variables are winsorized at the 5th and 95th percentiles and are lagged one year. *Govt Seat Share* is the proportion of seats in the federal parliament won from a state by the governing party coalition in the most recent federal elections, out of the total seats allocated to that state in the federal parliament; *Abs Seat Share Difference* is the absolute value of the difference between *Govt Seat Share* and the proportion of federal parliamentary seats won from a state by the main opposition party alliance; *State Govt Majority* is a dummy variable that is equal to one if the governing party coalition in the federal government also has a majority in the state government; the relevant state is determined by the location of the firm's main operations. 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>	0.798*** (0.162)	0.805*** (0.176)	0.774*** (0.169)	0.807*** (0.177)	0.775*** (0.169)
<i>Profit/Sales</i>	1.997** (0.898)	1.912** (0.950)	1.854** (0.898)	1.912** (0.949)	1.854** (0.894)
<i>Wages/Sales</i>	-3.463** (1.480)	-3.181** (1.446)	-3.273** (1.451)	-3.171** (1.456)	-3.267** (1.458)
<i>Govt Seat Share</i>		0.723** (0.347)		0.742** (0.351)	
<i>Abs Seat Share Difference</i>			0.793* (0.425)		0.809* (0.438)
<i>State Govt Majority</i>				-0.111 (0.332)	-0.082 (0.329)
Industry FE	Yes	Yes	Yes	Yes	Yes
Observations	2365	2365	2365	2365	2365

Table 6. Additional Measures of Political Competition and the Decision to Privatize

The table presents the results from estimating a Cox proportional hazard regression of the government's decision to privatize. Panel B uses the results of state assembly elections if those elections are more recent than the federal elections. *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. These variables are winsorized at the 5th and 95th percentiles and are lagged one year. *Govt Seat Share* is the proportion of seats in the federal parliament won from a state by the governing party coalition in the most recent federal elections, out of the total seats allocated to that state in the federal parliament; *Opposition Seat Share* the proportion of seats in the federal parliament won from a state by the main opposition party coalition in the most recent federal elections, out of the total seats allocated to that state in the federal parliament; *Seat Share Difference* and *Abs Seat Share Difference* are the difference and the absolute value of the difference respectively between *Govt Seat Share* and *Opposition Seat Share*; *Govt Vote Share*, *Opposition Vote Share*, *Vote Share Difference*, and *Abs Vote Share Difference* replace the share of seats with the share of votes. Heteroscedasticity-robust standard errors, clustered at the state level, are in parentheses. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 6 Panel A: Political Variables Based on Federal Elections						
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Ln(Sales)</i>	0.823*** (0.166)	0.817*** (0.171)	0.810*** (0.161)	0.827*** (0.151)	0.832*** (0.151)	0.815*** (0.153)
<i>Profit/Sales</i>	2.042** (0.948)	1.975** (0.962)	1.951** (0.929)	2.073** (0.957)	2.043** (0.982)	1.980** (0.993)
<i>Wages/Sales</i>	-3.507** (1.507)	-3.323** (1.478)	-3.314** (1.493)	-3.547** (1.492)	-3.419** (1.504)	-3.408** (1.509)
<i>Opposition Seat Share</i>	-0.601* (0.344)					
<i>Seat Share Difference</i>		0.401** (0.191)				
<i>Govt Vote Share</i>			1.819 (1.301)			
<i>Opposition Vote Share</i>				-1.488* (0.876)		
<i>Vote Share Difference</i>					1.340** (0.633)	
<i>Abs Vote Share Difference</i>						1.947*** (0.623)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2365	2365	2365	2365	2365	2365

Table 6 Panel B: Political Variables Based on State and Federal Elections

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Ln(Sales)</i>	0.803*** (0.170)	0.818*** (0.163)	0.813*** (0.166)	0.775*** (0.169)	0.829*** (0.149)	0.831*** (0.148)	0.814*** (0.152)
<i>Profit/Sales</i>	1.942** (0.937)	2.029** (0.930)	1.986** (0.946)	1.874** (0.912)	2.080** (0.954)	2.065** (0.974)	1.949* (0.999)
<i>Wages/Sales</i>	-3.300** (1.463)	-3.508** (1.497)	-3.395** (1.485)	-3.324** (1.464)	-3.518** (1.490)	-3.396** (1.504)	-3.391** (1.507)
<i>Govt Seat Share</i>	0.532* (0.276)						
<i>Opposition Seat Share</i>		-0.443* (0.259)					
<i>Seat Share Difference</i>			0.298** (0.136)				
<i>Abs Seat Share Difference</i>				0.684* (0.372)			
<i>Opposition Vote Share</i>					-1.494* (0.881)		
<i>Vote Share Difference</i>						1.249** (0.636)	
<i>Abs Vote Share Difference</i>							1.975*** (0.594)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2365	2365	2365	2365	2365	2365	2365

Table 7. Controlling for State-Level Characteristics and Political Ideology on the Decision to Privatize

The table presents the results from estimating a Cox proportional hazard regression of the government's decision to privatize. Columns (5) and (6) restrict the sample to the 16 largest Indian states. *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. These variables are winsorized at the 5th and 95th percentiles and are lagged one year. *Govt Seat Share* is the proportion of seats in the federal parliament won from a state by the governing party coalition in the most recent federal elections, out of the total seats allocated to that state in the federal parliament; *Abs Seat Share Difference* is the absolute value of the difference between *Govt Seat Share* and the proportion of federal parliamentary seats won from a state by the main opposition party alliance; *Ln (Per Capita Income)* is the log of annual per capita income in a state; *Per Capita Income Growth* is the annual % change in *Per Capita Income*. *Literacy* is the literacy rate in a state from 1991 for the years 1990-2000, and from 2001 for the years 2001-2004; *Leftist Seat Share* is the share of seats won by the leftist party alliance in a state in the most recent federal elections. 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)
					<i>Largest States</i>	
<i>Ln(Sales)</i>	0.821*** (0.193)	0.788*** (0.181)	0.818*** (0.172)	0.782*** (0.164)	0.842*** (0.243)	0.787*** (0.235)
<i>Profit/Sales</i>	1.945** (0.986)	1.889** (0.933)	1.962** (0.943)	1.895** (0.895)	3.068*** (0.823)	2.933*** (0.871)
<i>Wages/Sales</i>	-3.117** (1.507)	-3.205** (1.521)	-3.200** (1.438)	-3.295** (1.425)	-2.006 (1.822)	-2.282 (1.857)
<i>Govt Seat Share</i>	0.694* (0.368)		0.821** (0.338)		0.985*** (0.369)	
<i>Abs Seat Share Difference</i>		0.727* (0.408)		0.965* (0.522)		1.437*** (0.350)
<i>Ln (Per Capita Income)</i>	-0.402 (0.458)	-0.357 (0.440)				
<i>Per Capita Income Growth</i>	-0.697 (1.990)	-0.709 (1.956)				
<i>Literacy rate</i>	0.020** (0.008)	0.019** (0.008)				
<i>Leftist Seat Share</i>			0.511 (0.748)	0.596 (0.763)		
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2363	2363	2365	2365	1875	1875

Table 8: Alternative Econometric Specifications

Panel A of this table presents the results from estimating a cross-sectional probit regression of the government’s decision to transfer management control with the sample restricted to the period 1999-2003 when all the privatizations with transfer of management control to private owners were undertaken. *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. These variables are winsorized at the 5th and 95th percentiles, except in columns (5) and (6) in Panel B, and are lagged one year. *Govt Seat Share* is the proportion of seats in the federal parliament won from a state by the governing party coalition in the most recent federal elections, out of the total seats allocated to that state in the federal parliament; *Opposition Seat Share* the proportion of seats in the federal parliament won from a state by the main opposition party coalition in the most recent federal elections, out of the total seats allocated to that state in the federal parliament; *Seat Share Difference* and *Abs Seat Share Difference* are the difference and the absolute value of the difference respectively between *Govt Seat Share* and *Opposition Seat Share*; *Govt Vote Share*, *Opposition Vote Share*, *Vote Share Difference*, and *Abs Vote Share Difference* replace the share of seats with the share of votes. 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: Privatization with Transfer of Management Control (1999-2003)								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Ln(Sales)</i>	0.207*	0.190	0.188*	0.179	0.193	0.223*	0.205*	0.221**
	(0.114)	(0.124)	(0.107)	(0.123)	(0.121)	(0.114)	(0.106)	(0.101)
<i>Profit/Sales</i>	-0.027	-0.035	-0.003	-0.026	-0.014	-0.032	-0.125	0.126
	(0.556)	(0.580)	(0.510)	(0.574)	(0.568)	(0.519)	(0.588)	(0.440)
<i>Wages/Sales</i>	-0.351	-0.361	-0.426	-0.383	-0.363	-0.376	-0.460	-0.293
	(0.818)	(0.813)	(0.742)	(0.782)	(0.839)	(0.773)	(0.721)	(0.796)
<i>Govt Seat Share</i>		0.409						
		(0.572)						
<i>Opposition Seat Share</i>			-1.734*					
			(0.922)					
<i>Seat Share Difference</i>				0.545				
				(0.447)				
<i>Abs Seat Share Difference</i>					0.296			
					(0.589)			
<i>Opposition Vote Share</i>						-1.390		
						(1.282)		
<i>Vote Share Difference</i>							2.568*	
							(1.580)	
<i>Abs Vote Share Difference</i>								3.855**
								(1.640)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	109	109	109	109	109	109	109	109

Table 8 continued

Panel B presents the results from estimating a Cox proportional hazard regression of the government's decision to privatize. Columns (1) and (2) includes dummy variables for firm size quintiles where size is measured by firm sales; columns (3) and (4) restrict the sample to firms that report positive profits for the previous 3 fiscal years; and columns (5) and (6) do not winsorize the firm specific variables.

	Panel B					
	(1)	(2)	(3)	(4)	(5)	(6)
	With Sales Quintile Dummies		Controlling for Listing Requirements		Firm-Specific Variables not Winsorized	
<i>Ln(Sales)</i>	0.694*** (0.204)	0.621*** (0.210)	0.876*** (0.177)	0.817*** (0.156)	0.610*** (0.109)	0.591*** (0.108)
<i>Profit/Sales</i>	1.717* (1.035)	1.650* (0.976)	2.982*** (1.091)	2.888*** (1.050)	0.036 (0.031)	0.037 (0.031)
<i>Wages/Sales</i>	-2.730* (1.456)	-2.781** (1.418)	-6.963*** (2.595)	-7.116*** (2.514)	-4.151*** (1.328)	-4.135*** (1.349)
<i>Govt Seat Share</i>	0.659* (0.354)		0.830** (0.388)		0.670** (0.328)	
<i>Abs Seat Share Difference</i>		0.814* (0.433)		1.125*** (0.402)		0.901** (0.451)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2365	2365	1213	1213	2365	2365

Table 9: Effect of Privatization on Firm Performance

The table provides the results of pooled two-stage treatment effect regressions to analyze the effect of privatization on firm performance during the Congress regime (1991-1995) and the BJP regime (1999-2003). 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 with *Privatized* as the dependent variable. Performance change variables measure the change in firm-level characteristics from the most recent year before the government is elected (1990 for Congress and 1998 for BJP) to the year immediately after it loses the elections (1996 for Congress and 2004 for BJP). The dependent variables are *Sales Growth* ($\ln(\text{Sales}_{1996}/\text{Sales}_{1990})$, $\ln(\text{Sales}_{2004}/\text{Sales}_{1998})$); *Profit Growth* ($(\text{Profit}_{1996} - \text{Profit}_{1990})/\text{Sales}_{1990}$; $(\text{Profit}_{2004} - \text{Profit}_{1998})/\text{Sales}_{1998}$); *Growth in Wages/Sales* ($(\text{Wages}/\text{Sales})_{1996} - (\text{Wages}/\text{Sales})_{1990}$; $(\text{Wages}/\text{Sales})_{1998} - (\text{Wages}/\text{Sales})_{2004}$) is the average change in wage expenses over sales for the same period. $\ln(\text{Sales})$ is the log of annual sales; *Profit* is annual profit before interest, taxes and depreciation; *Wages* is the firm's annual wage expenses; they are as of 1990 and 1998. The firm-specific explanatory and dependent variables are winsorized at the 5th and 95th percentiles. *Privatized* is a dummy variable that is equal to one if the firm is privatized by the Congress or BJP governments. If a firm is privatized by the Congress government, it is not included for performance evaluation during the BJP government years of 1999-2004. *Govt Seat Share* is the proportion of seats in the federal parliament won from a state by the governing party coalition in the most recent federal elections, out of the total seats allocated to that state in the federal parliament. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Second Stage Regressions with Firm Performance			
	(1)	(2)	(3)
	<i>Sales Growth</i>	<i>Profit Growth</i>	<i>Growth in Wages/Sales</i>
<i>Privatized</i>	0.502*** (0.192)	0.541*** (0.165)	-0.132* (0.070)
<i>Ln(Sales)</i>	-0.048 (0.033)	-0.120*** (0.029)	-0.003 (0.012)
<i>Profit/Sales</i>	0.483** (0.238)	0.658*** (0.204)	-0.301*** (0.089)
<i>Wages/Sales</i>	0.259 (0.179)	0.175 (0.150)	-0.022 (0.067)
Industry FE	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes
Observations	289	291	289
Panel B: First Stage Probit			
<i>Govt Seat Share</i>		1.432*	
<i>Ln(Sales)</i>		(0.877)	
<i>Wages/Sales</i>		2.313*** (0.536)	
<i>Profit/Sales</i>		-5.689* (3.009)	
Industry FE		9.740*** (2.689)	
Year Dummies		Yes	
		Yes	