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The Decision to Privatize: Finance and Politics

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ABSTRACT

We investigate the influence of political and financial factors on the decision to privatize government-owned firms using firm-level data from India. We find that the government significantly delays privatization in regions where the governing party faces more competition from opposition parties. This result is robust to firm-specific factors and regional characteristics. The results also suggest that political patronage is important as no government-owned firm located in the home state of the minister in charge is ever privatized. Using political variables as an instrument for the endogenous privatization decision, we find that privatization has a positive impact on firm performance.

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

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The sale of government-owned firms to private owners has yielded more than $1 trillion in revenues for governments, 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 factors, but also on political costs and benefits. While the benefits of privatization, such as revenues from sale, financial market development, and efficiency gains, tend to be dispersed across the population, the costs of privatization, such as layoffs of surplus workers and the loss of private benefits of control for politicians, tend to be concentrated among a small group.[3] 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, such as layoffs, 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. Privatization may also be perceived negatively by the public as an inequitable transfer of publicly-owned assets to private owners, which can result in a loss of votes in the region. 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 delay privatization in regions where the governing and opposition parties face a close race. This is consistent with the argument that politicians may allocate public funds to pivotal regions to achieve electoral goals (Lindbeck and Weibull (1987) and Dixit and Londregan (1996)).

Since politicians obtain private benefits from controlling government-owned firms (Shleifer and Vishny (1994) and Dinç (2005)), we also consider the role of political patronage in the privatization decision. For example, politicians can influence the hiring decisions of government-owned firms to favor supporters. Theory suggests that politicians may target government programs to reward supporters with patronage (Cox and McCubbins (1986) and Persson and Tabellini (2002)). Hence, rent-seeking politicians may delay privatization in regions where their supporters are based.

To evaluate the effect of financial and political factors on the privatization decision we use a firm-level dataset on Indian firms that includes both privatized firms and those that remain fully government-owned. In many countries data on the latter are not available. The data provide financial information for 92% of the firms owned by the federal government for the fiscal years 1990 to 2004. We observe all the privatizations that have occurred since the start of the program, the majority of which were undertaken by the Congress government (1991 to 1995), and a smaller number by the BJP government (1999 to 2003). Thus, the political results are drawn mainly from the first privatizing government.

To investigate the role of politics we collect electoral data for each of the 543 electoral districts in India from all the federal elections held since the start of the privatization program in 1991. We then hand-collect data on the address of the main operations of each firm, and use digital geographic mapping techniques to match firms to electoral districts at varying distances around their location.

Using India as the empirical context for studying the politics of financial 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. The considerable political, demographic, ethnic, and socio-economic diversity across the Indian subcontinent leads to significant variation in support for the different political parties across the regions.

The results suggest that, similar to the IPO decision of private firms, larger firms are more likely to be privatized early. We also find that privatization is significantly delayed for firms with a large wage bill, suggesting that employees of firms with a large workforce may block privatization. Unlike private firm IPOs, political factors also play an important role in the privatization decision. In particular, we find that privatization is significantly delayed if a firm is located in a politically competitive constituency where the governing and opposition party alliances have won a similar share of the vote. For example, the rate of privatization is about 1.5 times higher for a firm located in a constituency at the 75th percentile of political competition compared to a firm located at the 25th percentile, where the lower percentile indicates a more competitive region. We find that the government also delays the privatization of firms that are located in districts where the opposition party has more voter support. These results suggest that the government acts to minimize the effects of a political backlash by delaying privatization in districts where the governing party faces more competition from the opposition.[4] Hence, the dispersed benefits and concentrated costs of privatization appear to significantly influence the pattern of privatization sales.

We check the robustness of the results in several ways. In particular, the specifications control for firm-level sales, profitability, wages, year and industry effects, the relative importance of the firm to the region, and regional differences in income, education, urbanization, and growth.

To investigate the role of political patronage in the privatization decision, we examine whether retaining control over a firm is a greater priority for the politician in charge of the firm if the firm is located in the home state of that politician. We find that no firm located in the state from which the minister with jurisdiction over that firm is elected is ever privatized. This result suggests that political patronage has a significant impact on the privatization decision.

Our results suggest that firm characteristics, such as sales and workforce, are significantly related to which firms are privatized. While there is a large literature documenting that privatization leads to significant improvements in the performance of government-owned firms (Megginson and Netter (2001) and Gupta (2005)), the majority of these studies do not account for the endogenous selection of firms for privatization based on their performance. Using political competition as an instrument, we correct for endogeneity of the privatization decision to firm characteristics, and find that privatized firms experience significant improvements in productivity and efficiency compared to firms that remain fully government-owned.

There is a growing empirical literature on the political economy of financial market reforms.[5] For example, 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; Bortolotti and Pinotti (2008) 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 pattern of banking sector deregulation across the different U.S. states; Sapienza (2004) shows that Italian government-owned banks charge lower interest rates in areas where the government is politically strong; and, Brown and Dinç (2005) document 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 since 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 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 privatization is likely to be endogenous to firm characteristics. We show that political variables may be used as instruments to correct for this endogeneity. These political measures are also likely to be useful for evaluating the impact of other endogenously implemented reforms, such as banking sector and foreign investment deregulation.

The paper is organized as follows: In section I we describe the Indian political system and the privatization program, in section II we describe hypotheses based on the financial and political factors likely to affect the privatization decision, and in section III we describe the data.

Section IV presents the regression results, section V describes robustness checks, in section VI we discuss the impact of privatization, and in section VII we conclude.

I. Background on Privatization and the Political System in India

A. 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, and 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)). 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 their average wages were twice as high as in the private sector (Panagariya (2008)). This large wage difference suggests why government firm workers vigorously oppose privatization. Describing this opposition a news article reported: "Over 25,000 ONGC [Oil and Natural Gas Commission] staff observed 'black day' and their union leaders went on hunger strike to mark their protest over the privatisation move," (*The Financial Times*, 1993). Over half the federal government-owned firms are loss-making and perform far worse in comparison to private firms in the same industry (Department of Disinvestment (2001)). 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 firms (Department of Disinvestment (2001)).

B. Political System

The most populous democracy in the world, India has a parliamentary system where representatives are directly elected to the *Lok Sabha*, the lower house in the federal government. Representatives 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. We include electoral data on 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 elections. It is common for national political parties to establish alliances with each other and smaller regional parties before the elections in order to increase their chances of obtaining a majority. Hence, we study the electoral performance of political party alliances. Following India's independence from the United Kingdom in 1947, the main political party was the ideologically center-left Congress Party. The economic reforms of 1991 were initiated by the Congress Party, which along with its allies won the 1991 elections and remained in power until the 1996 elections. The ideologically right-wing Bharatiya Janata Party (BJP) was the main opposition during this period with the second largest number of seats.

Between 1996 and 1998, there were successive short-lived governments, which collapsed due to a lack of support from coalition members. Following the 1999 elections, a new coalition led by the BJP formed the government and remained in power until 2004, with the Congress Party alliance as the main opposition. In the 2004 elections, the Congress Party and its allies obtained a winning majority with the BJP as the main opposition.

C. 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 the fiscal years 1991 to 2006.[7] 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 the Congress and BJP governments.

First Phase (1991 to 1996): The official policy of the Congress government called for a reduction in government ownership in most firms in non-strategic industries. 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, in 1991, the Finance Minister said that the government would privatize only up to 20% of equity 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 without transferring management control. 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. Like many countries around the world (LaPorta, Lopez de Silanes, and Shleifer (2002) and Boubakri, Cosset, and Guedhami (2005)), the majority of the privatizations undertaken by Indian governments involved 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.[8] 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 to private owners.

Privatization is deeply unpopular in India, as is demonstrated by the fact that it is officially referred to as "disinvestment". Despite the fact that both the Congress and BJP parties have undertaken some privatization, neither have an ideological commitment to privatization and both parties have used anti-privatization rhetoric to gain political advantage when in opposition. For example, the conservative BJP frequently attacked the Congress government's privatization plans (*Reuters News*, 1992), and even joined forces with labor unions to protest privatization (*Reuters News*, 1993). In 2004, sensing a public backlash against the BJP's reform agenda, the Congress party ran and won on a platform of limited privatizations.

Acknowledging the role of electoral politics the 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," (*Asia Times*, 1997).

Second Phase (1999 to 2003): Following the defeat of the Congress government in 1996, the privatization program remained in hiatus until the election of the BJP to the national government in 1999.[9] 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 the control transfer privatizations separately.

Political considerations may explain why so few privatizations were undertaken by the BJP, since the opposition Congress Party campaigned against it. In fact, attributing the defeat of the BJP-led National Democratic Alliance government in the 2004 elections to its disinvestment [privatization] program, a major newspaper's 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" (*The Hindu*, 2004).

Following the BJP's defeat, a coalition led by the Congress Party formed the government in 2004 with the stated policy that it would not privatize any profitable firms (Department of Disinvestment (2007)). During its tenure from 2004 to 2008, the Congress-led government privatized just one new firm, in 2004.

II. 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. 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 also develop 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.

A. Financial Factors: Firm Size and Profitability

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. Hence, we investigate whether firm size has an impact on the privatization decision.

Governments may prefer to privatize more profitable firms first to increase proceeds from privatization (Gupta, Ham, and Svejnar (2008)), and to build public support with successful initial sales (Dewenter and Malatesta (1997)). However, the evidence also suggests that unprofitable firms experience the greatest efficiency improvements following privatization (Claessens, Djankov, and Pohl (1997) and, Frydman et al. (1999)). Hence, this relationship will depend on the relative emphasis placed by the government on proceeds and public support over firm efficiency.

B. Political Factors

We investigate the role of politics using a political economy framework in which the benefits of privatization, such as sale proceeds, are likely to be dispersed across the population, while the costs of privatization, such as layoffs, tend to be concentrated among a small group. To understand how these concentrated costs may slow down privatization, we investigate the role of electoral considerations and political patronage on the decision to privatize.

Theory suggests that politicians may target public funds to pivotal regions with swing voters to win elections (Lindbeck and Weibull (1987), Dixit and Londregan (1996), and Persson and Tabellini (2002)). Empirically, Bertrand, et al. (2007) show that politically connected French firms create more jobs in politically competitive regions; and, Dahlberg and Johansson (2002) find that the distribution of grants in Sweden is concentrated in regions with more swing voters. We investigate whether the privatization decision is affected by the closeness of the election in the political competition hypothesis below.

Rent-seeking politicians may also allocate public funds to reward supporters with patronage (Cox and McCubbins (1986) and Persson and Tabellini (2002)). For example, Ansolabehere and Snyder (2007) show that governing parties skew the distribution of public funds in favor of regions that support them. We investigate whether politicians use government firms to benefit their supporters in the patronage hypothesis below. Note that politicians may target both regions that support them as well as regions that are politically competitive (Ansolabehere and Snyder (2007)).

B.1 Political Competition and Strength

The 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 government workers in the region, and negative public perceptions about privatization. The effect of a political backlash on electoral outcomes is likely to be greater if the governing and opposition parties have similar levels of voter support. When the governing party faces strong competition from the opposition, a decrease in support may cause it to lose seats from that region. Correspondingly, if the governing party has far more or far less support than the opposition, then a political backlash may not have much impact on the

election. Thus, if political competition matters in the privatization decision, it follows that the government will prefer to delay privatization in a region where the governing and opposition parties are in a close race.

The governing party may also choose to minimize the effects of a voter backlash by delaying the privatization of firms located in constituencies where the governing party does not have strong support, or where the opposition party does. Alternatively, the government may choose to reward its supporters by delaying privatization in regions where the governing party has strong support. Hence, the question of the effect of the governing and opposition party's political strength on the privatization decision is an empirical one. Note that support for the governing and opposition parties is negatively correlated but may not be exactly correlated in a multi-party system.

B.2 Political Patronage

It has been argued that a principal cause of inefficiency in government-owned firms is interference by politicians in the operations of the firm (Shleifer and Vishny (1994)). For example, politicians can influence the hiring and purchase decisions of government-owned firms so that they favor political supporters. If rent-seeking 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. To examine if political patronage affects the privatization decision, we investigate whether rent-seeking politicians reward their supporters by delaying privatization in their home states.

III. Data

A. 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. 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. We exclude three companies located in the state of Jammu and Kashmir where the elections were not always held during the sample period due to political unrest. Indian firms have to post 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 to firms that post positive profits for three years preceding privatization, for all years except 1999 to 2003. Between 1999 and 2003, firms were privatized through private asset sales and did not need to meet these listing requirements to qualify for privatization. The results do not change if we impose the listing requirement for the entire sample.

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 fiscal year 2004 (March 2005). Data on privatization transactions were obtained from the Disinvestment Commission of the Government of India, and from news sources. We also hand-collect data on the address of the main operations of each firm, which involved contacting many of these companies individually. 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.

>>>>>>>>>>>>>>>>>>>>Table I here<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

We observe financial data for 49 of the 50 federal government-owned firms that were privatized between 1991 and 2004. Table I 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. 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 that data are available.

Comparing the pre-privatization characteristics of privatized firms to firms that remain fully government-owned, we note several differences. In Table I we report that the average annual sales of privatized firms are more than four times larger than the average sales of firms not chosen for privatization, with the difference being significant at the 1% level. 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 these firm characteristics in all the regressions.

B. Political Data

We collect electoral data for each of the 543 single member electoral districts on the vote shares obtained by national and regional political parties in all the elections to the federal government held since the start of the privatization program in 1991 until 2004. These data are obtained from the Election Commission of India, which is in charge of conducting the elections. Information on which parties belong to the main alliances is obtained from press sources and election websites. In Figure 1 we provide a map of India's electoral districts.

>>>>>>>>>>>>>>>>>>>>>>>>>>FIGURE 1 HERE<<<<<<<<<<<<<<<<<<<<<<<<<<

We identify the electoral district in which the main operations of each firm are located and match the firm to the political and demographic data for that district. The role of political considerations in the privatization decision may however extend beyond the immediate electoral district to neighboring areas. In the main analysis, we construct the political variables for all the electoral constituencies that are located within a 10 km radius around the firm's main operations using digital Geographic Information Systems (GIS) mapping. As a robustness check, we also construct the political variables for electoral districts within 0, 5, 25, 50, and 100 km radii around the firm. In Figure 2 we provide an example of the construction of the political measures at varying distances around the main operations of firms located in the Indian state of Punjab.

>>>>>>>>>>>>>>>>>>>>>>>>FIG 2 HERE<<<<<<<<<<<<<<<<<<<<<<<<<<<<

To measure the political strength of the governing party alliance, we use the proportion of votes received by the governing party and its allies in the most recent elections to the federal parliament, in all the electoral constituencies within a 10 km radius around the firm (*Govt Vote Share*). To measure the political strength of the largest opposition party alliance, we use the proportion of votes received by the main opposition party and its allies in the most recent elections to the federal parliament (*Opposition Vote Share*). Note that although the two variables are related, *Opposition Vote Share* is rarely equal to 1-*Govt Vote Share* in a multi-party system. From the summary statistics reported in Table II we also note that in the top quartile of opposition vote share describing constituencies that strongly support the opposition, opposition parties received just 42% of the vote, which suggests that the governing party may be competitive even in the districts where the opposition is strongest.

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>TABLE II HERE<<<<<<<<<<<<<<<

To measure the extent of political competition between the governing and the opposition party alliances we define *Vote Share Difference* as the difference between *Govt Vote Share* and

Opposition Vote Share, which assumes a lower value in constituencies where the governing and opposition party are in a close race, or where the opposition party alliance is stronger. From the summary statistics reported in Table II we note that the 25th percentile of *Vote Share Difference* is equal to -0.006, i.e. it is close to zero in its lowest quartile. Hence, lower values of *Vote Share Difference* is likely to represent competitive districts where the governing and opposition parties have won a similar share of votes, rather than districts where the opposition party is far ahead of the governing party. We also construct the political competition measure, *Abs Vote Share Difference*, defined as the absolute value of the difference between *Govt Vote Share* and *Opposition Vote Share*. A lower value of *Abs Vote Share Difference* indicates a more competitive district.

>>>>>>>>>>>>>>>>>>>>> FIG 3 HERE<<<<<<<<<<<<<<<<<<<<<<<<<<<<<

In Figure 3 we provide a scatter plot and regression line describing the frequency of privatization (Number of Privatized Firms/Number of SOEs) as a function of political competition (*Vote Share Difference*) between the governing and opposition parties at the electoral district level for the years 1991 to 1995. The graph suggests that there are fewer privatizations in districts where the governing and opposition parties are in a close race as captured by lower values of *Vote Share Difference*.

To investigate the role of political patronage, we hand-collect data from various sources including the Comptroller and Auditor General of India (the auditing agency for government-owned firms), and match each firm by the state in which it is located to the home state of the cabinet minister with jurisdiction over that firm. 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. We collect these data for the fiscal years 1991 to 1995 and 1999 to 2002, including the cabinet

assignments of the Congress and the BJP governments. Since the BJP government reshuffled its Cabinet over a dozen times, we were unable to obtain data on Cabinet membership for the last two years of its tenure. We describe the patronage results in Section IV D.

IV. Results

A. Regression Framework

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

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

where $x_1 \ldots x_k$ are firm, constituency, and state-level explanatory variables, which include both time-varying and time-invariant variables. A description of the proportional hazard model can be found in Wooldridge (2001). The time of privatization is determined by the first sale of shares in the firm. Throughout the paper we report the coefficients rather than the hazard ratios from the estimations.

To account for firm-specific characteristics that affect 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 $h_0(t)$, which implies that the specification is robust to any time-specific common factors, equivalent to controlling for year fixed effects. The regressions also include fixed effects for 35 industries classified according to two-digit standard industrial classification codes. Thus, the framework incorporates the fact that in some industries and in some years there

are no privatizations. Lastly, the heteroskedasticity-robust standard errors are corrected for clustering at the state level.

B. 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 III we note that larger firms are significantly more likely to be privatized early. The size result is consistent with the hypothesis that bigger 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 high wage bill suggests that employees of firms with a large, organized workforce may be more successful in delaying privatization.

>>>>>>>>>>>>>>>>>>>>>>>>>>>TABLE III HERE<<<<<<<<<<<<<<<<<<<<<<<<<<<

C. Political Strength and Competition

Examining the role of electoral concerns in the privatization decision, we note from the results reported in columns (2) and (3) of Table III 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% level. For example, for a firm located in a constituency at the 75th percentile of *Opposition Vote Share* (equal to 42%) the rate of privatization is less than one-half of the rate for a firm located in a constituency at the 25th percentile (equal to 16%), with the other variables evaluated at their regression mean in column (3). Thus, privatization is significantly delayed in electoral constituencies where the opposition party alliance has more voter support.

Considering the role of political competition next, we note from columns (4) and (5) of Table III that the estimated coefficients of *Vote Share Difference* and *Abs Vote Share Difference* are positive and statistically significant at the 1% level, indicating that privatization is significantly delayed in constituencies where the governing and opposition party alliances are in a close race, as captured by smaller values of these variables. From column (4) we note that the rate of privatization for a firm located in a constituency at the 75th percentile of *Vote Share Difference* (equal to 25%) is more than 1.5 times the rate for a firm located in a constituency at the 25th percentile (equal to -0.6%), where the lower percentile indicates a more competitive constituency since the two parties obtain a similar share of votes. From column (5), we estimate that the rate of privatization is about 1.5 times higher for a firm located in a constituency at the 75^{th} percentile of *Abs Vote Share Difference* (equal to 31%) compared to a firm located at the 25^{th} percentile (equal to 7.6%).

Facing a trade-off between the locally concentrated costs and the dispersed benefits of privatization, we find that the government's decision to privatize some firms and not others depends significantly on electoral concerns. In the "winner takes all" electoral system in India, a small difference in vote shares implies that the seat from that district could flip to the other party in the next election. Consistent with the theory (Lindbeck and Weibull (1987) and Dixit and Londregan (1996)), our results show that the government delays the privatization of firms located in more competitive constituencies where the difference in votes received by the governing and opposition parties (*Vote Share Difference*) and the absolute value of this difference (*Abs Vote Share Difference*) is small.

Rather than rewarding a supportive electorate, we find that the government delays the privatization of firms that are located in districts where the opposition party has strong support. We note that the election may be competitive even in districts where the opposition is strong. For

example, in constituencies where the opposition party vote share is in the 75th percentile of the sample, these parties won just 42% of the vote, or less than a majority (Table II).

In addition to electoral factors, we investigate the influence of location-specific demographic characteristics such as state-level income (*Ln Per Capita Income*) and growth opportunities (*Per Capita Income Growth*, the annual change in per capita income) on the decision to privatize. At the electoral district level, we consider the literacy and urbanization rates in a 10 km radius around the firm's main operations. From the results reported in Table III it appears that the rate of privatization is significantly higher in districts with a more literate population, suggesting that educated voters may favor reforms. Privatization is also significantly delayed in more urban districts, which indicates a stronger presence of organized labor in industrialized urban areas rather than agricultural rural districts. The political results are robust to these regional differences in socio-economic characteristics.

The government may also delay privatization in a region with many government-owned firms because there will be more workers opposed to privatization in that region. To investigate, we consider the relative size of a firm in an electoral constituency with the variable *Firm Importance*, the ratio of a firm's sales to the total sales of all government-owned firms in the region. As reported in Table III, the estimated coefficient of this variable is negative but not statistically significant.

>>>>>>>>>>>>>>>>>>>>>>>>>>>TABLE IV HERE<<<<<<<<<<<<<<<<<<<<<<<<<<<

D. Political Patronage

If a politician with jurisdiction over a firm is elected from the same state where the firm is located he may be reluctant to privatize because he is likely to have more supporters in his home state. To test this hypothesis, we identify the cabinet minister in charge of each firm for the

years 1991 to 1995 and 1999 to 2002, and compare the minister's home state to the state where the firm's main operations are located.[10]

The results are presented in Table IV. In Panel A, we describe the tenure of the Congress government (1991 to 1995), where the home state of the cabinet minister in charge of the 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 and 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. The results show that no firm located in the home state of the Cabinet minister in charge of that firm is ever 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 statistically significant at the 5% level. These results suggest that political patronage plays a significant role in the privatization decision. Note that regression analysis is not possible because of the lack of heterogeneity.

>>>>>>>>>>>>>>>>>>>>>>>>>>TABLE V HERE<<<<<<<<<<<<<<<<<<<<<<<<<<

V. Robustness Checks

A. Political Variables at Different Distances

We check the robustness of the regression results by constructing the political variables at varying distances around the main operations of the firm. In particular, we construct all the political variables for electoral constituencies located within a 0, 5, 25, 50, and 100 km radius around the main operations of the firm, and at the state level. From the results described in Table V we note that the political competition results are robust to these alternative measures. Note that here and in the robustness checks described below, the results are similar to those reported in Table III for the other political measures. We provide the full set of tables in the Internet Appendix.

B. Role of Election Years, Regional Communist Parties, and Regional Governments

If politics plays an important role, then the privatization decision may be affected by the timing of elections. In Table VI, column (1) we estimate an exponential hazard regression to investigate the presence of political business cycles with *Election Year*, a dummy variable that is equal to one in the year of an election.[11] Note that we control for government fixed effects in this specification. The results suggest that privatization is significantly delayed in the year of an election, while political competition remains significant at the 1% level. These results provide additional evidence that privatization is politically costly, and the government seeks to minimize the negative electoral impact by avoiding it in election years.

>>>>>>>>>>>>>>>>>>>>>>>>>>>TABLE VI HERE<<<<<<<<<<<<<<<<<<<<<<<<<<<

Since the communist parties in India have consistently opposed privatization, we investigate whether the strength of these parties in a constituency influences the privatization decision. The results are reported in column 2 of Table VI. *Communist Vote Share*, defined as the proportion of votes won by the Communist parties in all electoral districts within a 10 km radius around the firm, does not have a statistically significant impact. This may be attributed to the absence of broad-based support for Communist parties across the populace - these parties received just 8% of the total vote on average across all elections. The coefficient of *Vote Share Difference* retains its sign and significance, indicating that these results are not a proxy for the influence of communist parties.

To investigate whether the federal government's decision to privatize is influenced by the government in power at the state level, 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 column 3 of Table VI we note that

State Assembly Majority has a negative sign, although the coefficient is not statistically significant.

>>>>>>>>>>>>>>>>>>>>>>>>>>>>TABLE VII HERE<<<<<<<<<<<<<<<<<<<<<<<<<<<<

C. 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. In Table VII 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 results obtained using the full sample in Table III, we find that control transfer privatizations are significantly delayed if the firm is located in a region where the governing and opposition parties are in a close race as captured by a lower value of *Vote Share Difference*.

D. Alternative Specifications

We conduct a number of additional robustness checks, which we report in the Internet Appendix. To investigate whether the political variables are a proxy for other factors, such as non-linear firm size effects, we include dummy variables for quintiles of firm sales in the specification. The political variables all retain their sign and statistical significance. We also estimate the regressions with the firm-specific variables winsorized a total of 5% to mitigate the effect of potential outliers and find that the coefficients of the political variables are similar in sign and statistical significance to Table III. Lastly, we investigate whether the political results are robust to restricting the sample to the 15 largest Indian states and find that the estimated coefficients of the political variables retain their sign and are highly statistically significant.

VI. Impact of Privatization on Firm Performance

Our results suggest that the financial characteristics of firms have a significant impact on the government's decision to privatize. This raises an identification issue for evaluating the effect of privatization on firm performance. For example, if the government is more likely to privatize profitable firms, then comparing the performance of privatized firms to firms that remain government-owned may overstate the impact of privatization on profitability. Our analysis provides a potential identification strategy using political variables as an instrument for the privatization decision.

We estimate a two-stage least squares treatment effects regression by pooling data from the Congress (1991-1995) and BJP years (1999-2003), and using the political competition measure *Vote Share Difference* as an instrument for the variable *Privatized,* which takes the value of one if the firm is privatized by the government in power.[12] The regressions also include all the firm-specific and demographic controls in Table III, as well as industry and year fixed effects.[13] The control group is firms that have not been privatized. From the first stage probit regression results reported in Panel B of Table VIII, we note that *Vote Share Difference* has a positive and highly statistically significant impact (at the 1% level) on the probability of privatization.

In the second stage regressions, the dependent variables capture the change in firm performance during the tenure of a particular government, and are winsorized 2.5% at each tail to mitigate the effect of outliers. If a firm was privatized by a previous government, it is dropped from the sample in the subsequent period.

>>>>>>>>>>>>>>>>>>>>>>>>>>>TABLE VIII HERE<<<<<<<<<<<<<<<<<<<<<<<<<=

The results from the second stage of the instrumental variable regression are reported in Panel A of Table VIII. From columns (1)-(3) we note that compared to firms that remain fully government-owned, privatized firms experience a significant increase in productivity and profitability. Specifically, *Profits/Sales*, *Profits/Assets*, and *Profits/Wages* increase significantly following privatization. Using political variables to address the endogeneity of the privatization decision to firm characteristics, our results suggest that privatization leads to a significant improvement in the efficiency and profitability of government-owned firms. Thus, the instrumental variable analysis allows us to identify the impact of privatization on firm performance from the endogenous selection of firms based on performance into privatization.

VII. Conclusion

Based on the fact that most privatizing governments sell government-owned firms over time or not at all, we investigate whether firm-specific 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 digital geographic mapping techniques to match firms based on their location to electoral constituencies at varying distances around the main operations of the firms. We find that the decision to privatize is affected by firm-level financial characteristics and location-specific electoral considerations.

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 the local employees of government firms. The public too may perceive privatization negatively as an unequal transfer of public assets to private owners. This could result in a decrease in voter support for the governing party in the region where the firm is located. The

effect of a backlash on electoral outcomes will be greater if the governing party faces a close race with other political parties in that region.

The results suggest that larger firms and firms with a smaller wage bill are more likely to be privatized early. We also find that political factors play a major role in the decision to privatize. In particular, privatization is significantly delayed if the main operations of a firm are located in electoral districts where the opposition party alliance is stronger, and where the governing and opposition party alliances face a close race. 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 show 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 effect of privatization by assuming (often implicitly) that firms are selected randomly for privatization. This paper shows that selection for privatization is not random. Using political competition as an instrument for the privatization decision, we find that the sale of government-owned firms leads to significant improvements in the profitability and efficiency of these firms.

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[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] Ahmed and Varshney (2008) discuss why privatization has been difficult to implement in India, whereas other policies such as stock market liberalization, have not: "Within economic policy… some issues are more likely to arouse mass contestation than others. Privatization, a change in labor laws, withdrawal of agricultural subsidies... Either a large number of people are negatively affected in the short run (agriculture), or those so affected, even when not in large numbers, are well organized in unions (privatization and labor laws). It should now be clear why India's decision makers have…achieved limited privatization" (page 22).

[4] 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," (*The Financial Times*, 1994).

[5] The question of how a government maximizing revenues will sequence the sale of firms is investigated theoretically in an auction model by Chakraborty, Gupta, and Harbaugh (2006), and empirically using Czech data by Gupta, Ham, and Svejnar (2008). Governments may also 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. Lastly, Biais and Perotti (2002) argue that share issue privatizations may create more support amongst the median voter for the policies of conservative governments.

[6] Total employment in the organized sector in 2003 was 27 million workers, about 7 to 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] Fiscal year *t* starts in April of calendar year *t* and runs through March of calendar year *t+1*.

[8] Gupta (2005) shows that partially privatized Indian firms experience significant improvements in performance relative to firms that remain fully government-owned, 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. However, using a different sample of Chinese firms, Song and Yao (2004) find that earnings increase following partial privatization.

[9] 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.

[10] 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 observation due to the lack of independence across years. We also exclude from the sample the industries in which no privatizations occur.

[11] We estimate an exponential hazard model instead of the Cox proportional hazard model because the Cox model controls for all the common elements at a given point in time, so it would drop the election year dummy.

[12] We follow Wooldridge (2007, page 4) and fit a probit model with *Privatized* as the dependent variable, and use the fitted probabilities from this model as an instrument for *Privatized* in a 2SLS estimation.

[13] The regressions include two observations for each firm, one from the Congress period and the other from the BJP era. The exception is firms that are privatized by the Congress government, which are dropped from the sample in the subsequent BJP years to avoid endogeneity.

Table I. Comparing Privatized and Fully Government-Owned Firms

This table presents sample statistics of the firm-specific financial variables used in the analysis for fiscal years 1990 to 2004, where fiscal year 2004 runs from April 2004 to March 2005. *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 variables are lagged one year. Firms that do not meet the listing requirement for all the years except 1999-2003 are excluded from the analysis and only firm-years for which we have sales, profits, and wages data are included. Standard deviations are in parentheses. *** indicates significance at the 1% level.

Variables	***Privatized***	***Fully Government-Owned***	***All Firms***
		Sales	
Mean	28,862***	6,777	8,910
Standard Deviation	(51,935)	(23,652)	(28,407)
Number of Firm-years	153	1431	1584
		Assets	
Mean	51,545***	14,436	18,025
Standard Deviation	(114,022)	(55,067)	(64,103)
Number of Firm-years	153	1429	1582
		Profit/Sales (%)	
Mean	.184	1.301	1.193
Standard Deviation	(.189)	(59.777)	(56.816)
Number of Firm-years	153	1431	1584
		Wages/Sales (%)	
Mean	.140***	.966	.887
Standard Deviation	(.162)	(9.176)	(8.725)
Number of Firm-years	153	1431	1584
Number of Firms	49	191	240

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

This table presents the summary statistics describing the political variables for the five federal elections held in the fiscal years 1990, 1995, 1997, 1998, and 2003. *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 party coalition, 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. Standard deviations are in parentheses.

Variables	***All Firms***	***Fully Government-Owned***	***Privatized***
	Govt Vote Share		
Mean	0.396	0.395	0.399
Standard Deviation	(0.148)	(0.149)	(0.143)
75th Percentile	0.487	0.489	0.470
25th Percentile	0.372	0.362	0.396
	Opposition Vote Share		
Mean	0.308	0.310	0.291
Standard Deviation	(0.151)	(0.148)	(0.172)
75th Percentile	0.420	0.420	0.402
25th Percentile	0.157	0.173	0.105
	Vote Share Difference		
Mean	0.088	0.085	0.108
Standard Deviation	(0.228)	(0.226)	(0.238)
75th Percentile	0.256	0.256	0.301
25th Percentile	-0.006	-0.011	-0.006
	Abs Vote Share Difference		
Mean	0.191	0.191	0.191
Standard Deviation	(0.151)	(0.148)	(0.177)
75th Percentile	0.314	0.312	0.329
25th Percentile	0.139	0.142	0.099
Number of Firm-Years	1579	1426	153

Table III. The Decision to Privatize: The Role of Financial and Political Factors

This table presents results from estimating a Cox proportional hazard regression covering fiscal years 1990-2004. The firm-specific variables are lagged one year. *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 within 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 within a 10 km radius. *Govt Vote Share* and *Opposition Vote Share* are the proportion of votes in the most recent elections won by the governing and opposition party coalitions respectively, in the electoral constituencies located within a 10 km radius; *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. Firms that do not meet the listing requirement except from 1999-2003 are excluded. 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)
Ln (Sales)	0.630***	0.630***	0.721***	0.686***	0.686***
	(0.153)	(0.147)	(0.134)	(0.138)	(0.143)
Profit/Sales	0.024	0.024	0.019	0.02	0.022
	(0.038)	(0.037)	(0.039)	(0.041)	(0.037)
Wages/Sales	-3.336*	-3.200*	-3.169*	-3.002*	-3.233*
	(1.965)	(1.744)	(1.755)	(1.672)	(1.905)
Ln (Per Capita Income)	0.304	0.296	0.342	0.312	0.375
	(0.499)	(0.485)	(0.565)	(0.534)	(0.547)
Per Capita Income	-0.261	-0.269	-0.127	-0.199	-0.183
Growth	(0.517)	(0.540)	(0.628)	(0.600)	(0.620)
Literacy	3.039*	3.052**	2.669***	2.787***	2.718**
	(1.590)	(1.494)	(0.995)	(1.067)	(1.122)
Urbanization	-1.866***	-1.931***	-1.351**	-1.669***	-1.664***
	(0.715)	(0.621)	(0.639)	(0.582)	(0.627)
Firm Importance	-0.402	-0.444	-0.405	-0.495	-0.464
	(0.480)	(0.393)	(0.401)	(0.374)	(0.374)
Govt Vote Share		0.967			
		(1.386)			
Opposition Vote Share			-2.914***		
			(0.694)		
Vote Share Difference				1.789***	
				(0.656)	
Abs Vote Share Difference					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 IV. The Decision to Privatize: The Role of Political Patronage

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. Firms that do not meet the listing requirement for all the years except 1999-2003 are excluded from the analysis. ** denotes statistical significance at the 5% level.

Panel A: Congress government (1991-1995)

	Privatized		
Main Operations in Home State	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)

	Privatized		
Main Operations in Home State	No	Yes	**Total**
No	518	46	564
Yes	45	0	45
Total	563	46	609
Correlation	-0.081**		

Table V. 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. The political variable in the last regression is constructed using all the electoral constituencies in the state where the main operations of the firm are located, regardless of the distance. 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 III. Firms that do not meet the listing requirement for all the years except 1999-2003 are excluded from the analysis. Heteroscedasticity-robust standard errors, clustered at the state level, are in parentheses. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Maximum Distance between the electoral constituencies and the firm	0 km	5 km	25 km	50 km	100 km	State
Vote Share Difference	0.964*	1.528***	1.843***	1.535**	1.511**	1.540**
	(0.547)	(0.580)	(0.705)	(0.699)	(0.742)	(0.686)
Firm-specific and Demographic controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Number of Firm-years	1579	1579	1579	1579	1579	1579
Number of Firms	239	239	239	239	239	239

Table VI. Election Years, Communist Parties, and Regional Politics

This table presents results from estimating Exponential and Cox proportional hazard regressions of the government's decision to privatize, covering fiscal years 1990-2004. *Election Year* is a dummy variable that takes the value of one in of the fiscal years 1995, 1997, 1998, and 2003. *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 III. Firms that do not meet the listing requirement for all the years except 1999-2003 are excluded from the analysis. The first regression also includes government fixed effects. 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)
Ln(Sales)	0.702***	0.693***	0.685***
	(0.126)	(0.137)	(0.138)
Profit/Sales	0.018	0.016	0.02
	(0.046)	(0.040)	(0.041)
Wages/Sales	-3.126*	-3.049*	-2.987*
	(1.693)	(1.689)	(1.666)
Election Year	-1.801*		
	(1.038)		
Communist Vote Share		0.87	
		(1.065)	
State Assembly Majority			-0.292
			(0.718)
Vote Share Difference	1.813**	1.700**	1.756***
	(0.705)	(0.705)	(0.666)
Demographics Controls	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Number of Firms	239	239	239
Number of Firm-years	1579	1579	1579
Hazard Model	Exponential	Cox	Cox

Table VII. 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 III. Heteroscedasticity-robust standard errors, clustered at the state level, are in parentheses. *, ** denote statistical significance at the 10% and 5% levels, respectively.

	(1)	(2)
Ln(Sales)	0.169	0.167
	(0.197)	(0.203)
Profit/Sales	-0.309	-0.280
	(0.251)	(0.238)
Wages/Sales	-3.767	-4.014*
	(2.390)	(2.180)
Ln (Per Capita Income)	0.202	0.291
	(0.442)	(0.531)
Per Capita Income Growth	-1.329*	-1.371*
	(0.734)	(0.727)
Literacy	3.557*	5.034*
	(2.025)	(2.982)
Urbanization	-2.663	-3.584**
	(1.736)	(1.391)
Firm Importance	-0.356	-0.490
	(0.893)	(0.915)
Vote Share Difference		2.422*
		(1.305)
Industry FE	Yes	Yes
Number of Firms	223	223
Number of Firm-years	878	878

Table VIII. 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 2SLS regressions with firm performance measures as the dependent variables. The variable *Privatized*, equal to one if the firm is privatized by the government in power, is instrumented by the fitted probabilities obtained from a probit model, which has *Privatized* as the dependent variable and is reported in Panel B. The variable included in the probit model but excluded in the performance estimates is *Vote Share Difference*, which is the difference between the proportion of votes in the most recent federal parliamentary elections won by the governing party coalition and the opposition coalition, in the electoral constituencies located within a 10 km radius of the firm's main operations. The performance change variables measure the change in firm-level characteristics from the most recent year before the government is elected to the last year it remains in power. The dependent variables are winsorized 2.5% at each tail. If a firm is privatized by a previous government, it is not included for performance evaluation in the subsequent period. Firms that do not meet the listing requirement for all the years except 1999-2003 are excluded from the analysis. The remaining variables are as described in Table III. Standard errors are robust to clustering at the state level and all specifications include industry and year fixed effects. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Second Stage Regressions with Firm Performance

Dependent variable	*Change in Profits/Assets*	*Change in Profits/Sales*	*Change in Profits/Wages*
Privatized	0.415**	0.402**	2.480**
	(0.170)	(0.183)	(0.981)
Ln(Sales)	-0.088***	-0.110**	-0.435
	(0.034)	(0.046)	(0.285)
Profit/Sales	-0.077**	0.107***	0.290***
	(0.038)	(0.021)	(0.103)
Wages/Sales	0.255**	0.479***	1.216***
	(0.102)	(0.090)	(0.335)
Constant	1.420*	1.654**	7.005**
	(0.751)	(0.769)	(3.349)
Demographic Controls	Yes	Yes	Yes
Industry and Year FE	Yes	Yes	Yes
Number of Firm-years	203	200	203

Table VIII continued

Panel B. First Stage Probit	
Dependent variable	Privatized
Vote Share Difference	2.755***
	(0.596)
Ln (Sales)	0.885***
	(0.159)
Profit/Sales	0.063
	(0.194)
Wages/Sales	-1.277
	(1.990)
Constant	-11.410**
	(4.946)
Demographic Controls	Yes
Industry and Year FE	Yes

Figure 1: Electoral District Map of India

Figure 2: Electoral Constituencies at the Firm Level

The figure describes how the political variables are constructed at varying distances around the location of firms in one state.

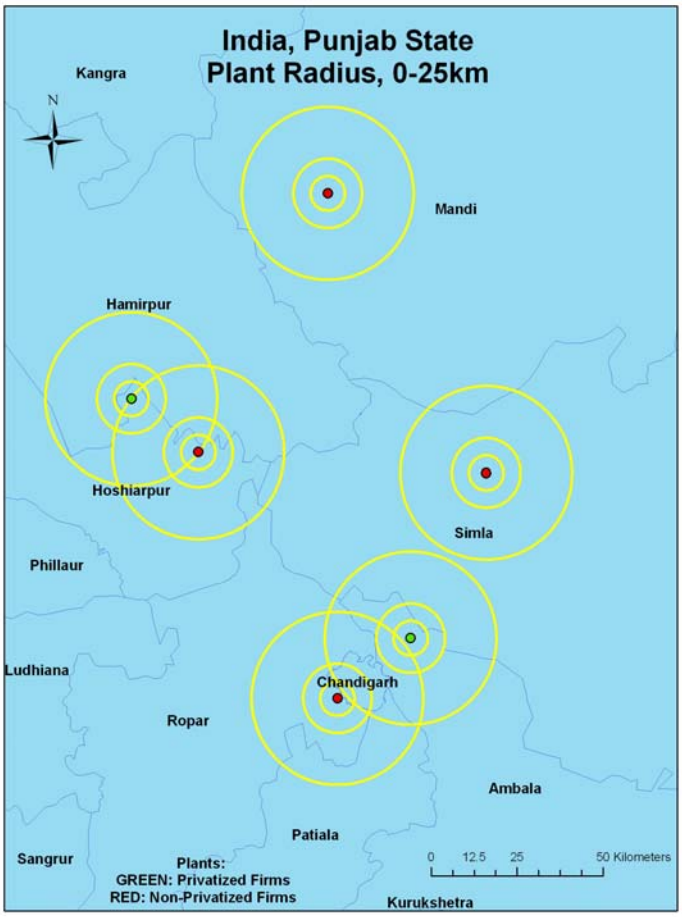

Figure 3: Relationship between Frequency of Privatization at the Electoral Constituency Level and Political Variables

The graph describes the relationship between the frequency of privatization in electoral constituencies within 10 km of the main operations of all firms, constructed as the number of privatized firms/number of government-owned and privatized firms in the region. The data is for the fiscal years 1991-1995. Industries in which no firms are privatized and firms that do not meet the listing requirement are excluded from the analysis.