



## **Do Effective State Business Relations matter for Firm Performance? – A study of Indian Manufacturing\***

Vinish Kathuria, Rajesh Raj S. N. and Kunal Sen<sup>1</sup>

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IPPG Programme Office, IDPM, School of Environment & Development  
University of Manchester, Arthur Lewis Building, 2.023, Oxford Road  
Manchester M13 9PL; Telephone 0161 306 6438; [ippg@manchester.ac.uk](mailto:ippg@manchester.ac.uk)  
[www.ippg.org.uk](http://www.ippg.org.uk)

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<sup>1</sup> The authors are:

Vinish Kathuria, SJMSOM, Indian Institute of Technology Bombay, India - [vinish@iitb.ac.in](mailto:vinish@iitb.ac.in)

Rajesh Raj S. N., Centre for Multi-Disciplinary Development Research, Dharwad, Karnataka, India - [rajeshraj.natarajan@gmail.com](mailto:rajeshraj.natarajan@gmail.com)

Kunal Sen, IDPM, University of Manchester, UK - [kunal.sen@manchester.ac.uk](mailto:kunal.sen@manchester.ac.uk)



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## **Abstract**

This paper examines the role of the external institutional environment captured by effective state-business relations on firm performance. By effective state-business relations, we mean a set of highly institutionalised, responsive and public interactions between the state and the business sector. We find that effective state-business relations have had a discernible positive impact on firm performance in Indian formal manufacturing over the period 1989-90 - 2004-05. We also find internal and external institutional factors are complementary to firm performance - smaller firms, firms in urban areas, and firms in simpler organizational forms benefit more.

**Keywords:** State business relations, firm productivity, manufacturing sector, India.

JEL Classification Codes: L25, O53, O43.

## 1. INTRODUCTION

Why are some firms more productive than others? Much of the previous literature on the determinants of firm performance has highlighted the role of the institutional factors that are internal to the firm such as the firm's ownership structure (Boardman and Vining 1989, Chhibber and Majumdar 1998, 1999, Khanna and Palepu 2000), the ability of its managers (Shleifer and Vishny 1989), the investments that the firm's owners makes in human capital of its employees (Bates 1990, Becker and Barry 1996) and the innovative capabilities of the firm (Penrose 1959, Nelson and Winter 1982, Cimoli *et al.* 2009). Less attention has been paid to the external institutional determinants of firm performance, and in particular the relationship between the state and the business sector.<sup>i</sup> In this paper, we examine the role of effective state-business relations in influencing firm performance using Indian manufacturing as a case-study. By effective state-business relations, we mean a set of highly institutionalised, responsive and public interactions between the state and the business elite. As has been noted in the case of East Asia, strong industrial performance has occurred in contexts where there were strong collaborative relations between the political and economic elites (Aoki 2001, Amsden 2001).

Effective state-business relations occur when there is 'the maintenance of benign collaboration between the agents of the state and business' (Harriss 2006). Benign collaboration between agents of the state and business require strong, well organised and representative business associations and effective and accountable governments that have a strong interest in the growth of the private sector. Well organised business associations can contribute to firm performance by providing both market-supporting and market-complementing activities (Cammett 2007). Through market-supporting activities, business associations can strengthen the overall functioning of markets by supporting the provision of public goods such as electricity and roads which are critical for productive investments to take place. Market-complementing activities, on the other hand, address various types of market imperfections and involve 'direct coordination among firms to reconcile production and investment decisions' (Doner and Schneider 2000). Effective and accountable governments can deliver on the services and public goods that are essential for robust private sector growth such as infrastructure and law and order. Strong states can make credible commitments on key policies such as future rates of corporate taxation and the non-likelihood of nationalisation of private sector assets. Such commitments are essential for the firms to invest in human capital and machinery and equipment that are likely to boost firm performance (Sen and te Velde, 2009).

Our empirical context is India, which provides us a fertile empirical ground to examine the relationship between effective state-business relations and economic performance at the firm level. Given India's federal political structure, we would expect to see wide variations in the manner Indian state governments interact with the business sector. Given the move from a command and control regime by Indian policy makers since 1991 and the political space that economic reforms provided to state governments to follow their own paths with specific economic policies (within certain constraints), we would expect significant variation in effective state-business relations across Indian states. We exploit these institutional differences of Indian states testing for the impact of effective state-business relations (SBRs) on firm performance for the Indian formal manufacturing sector. We first propose a way of quantifying the degree of effectiveness of SBRs for fifteen Indian states, which has been developed by Calì, Mitra and Purohit (henceforth, CMP). The strength of the CMP measure of the effectiveness of SBRs in Indian states is that it varies both over time and across states in India. This allows us to systematically evaluate the role of effective SBR in explaining firm performance across states in India. We use this measure in augmented production function estimates of firm performance using a pooled data set which covers all firms in the Indian formal manufacturing sector for the years 1989-90, 1994-95, 2000-01 and 2004-05 to examine

whether effective SBRs matter for firm performance. We also explore whether institutional factors internal to the firm such as firm size, firm age, location and organisational form influence the manner effective SBRs impact on firm performance. We find that effective state-business relations have had a discernible positive impact on firm performance in India. We also find effective state-business relations particularly benefit smaller firms, firms in urban areas, and firms with diffused ownership (in contrast to simpler organisational forms such as sole proprietorships and family firms).

The rest of the paper is organised as follows. In the next section, we set out the theoretical argument why effective state-business relations matter for firm performance. The third section briefly describes the measure of state-business relations in India, drawing from the work of Cali, Mitra and Purohit (2009). We describe our data and methodology in section four. Section V discusses the results of our analysis. The last section concludes.

## **2. WHY DO EFFECTIVE STATE-BUSINESS RELATIONS MATTER FOR FIRM PERFORMANCE?**

The literature on state-business relations takes the following elements as essential characteristics of effective state-business relations (SBRs) (see Maxfield and Schneider 1997, Chapter 1).

- *Transparency*: the flow of accurate and reliable information, both ways, between business and government.
- *Reciprocity*: the capacity and autonomy of state actions to secure improved performance in return for subsidies.
- *Credibility*: when capitalists are able to believe what state actors say.

Effective SBRs as characterised above can affect firm performance through fulfilling a number of economic functions. Firstly, they can help to solve information related market and co-ordination failures in areas such as skill development or infrastructure provision (Amsden 1989). For instance, business associations or government departments may co-ordinate and disperse information among stakeholders. Greater transparency in the flow of information between state actors and the business sector leads to a better allocation of investments by the business sector to their most productive uses. Higher credibility of state actions lead to less problems of time and dynamic inconsistency of government policies, providing a more favourable environment for high quality investment to occur (Rodrik 1991, Ibarra 1995). Reciprocity ensures improved performance by private sector actors in return for subsidies and the provision of public goods, contributing to higher productivity growth.

Secondly, effective SBRs provide a check and balance function on government policies and tax and expenditure plans (te Velde 2006). Thus, effective SBRs may help to ensure that the provision of infrastructure is appropriate and of good quality. The design of effective government policies and regulations depends, among other things, on input from and consultation with the private sector. Regular sharing of information between the state and businesses ensures that private sector objectives are met with public action and that local level issues are fed into higher level policy processes (Evans 1995). The private sector can identify constraints, opportunities, and possible policy options for creating incentives, lowering investment risks, and reducing the cost of doing business. More efficient institutions and rules and regulations might be achieved through policy advocacy which could reduce the costs and risks faced by firms and enhance productivity.

In summary, effective state-business relations can mitigate both market failures and government failures which are pervasive in most developing countries, and by doing so, bring about an increase in the performance of firms.<sup>ii</sup>

### 3. MEASURING STATE BUSINESS RELATIONS IN INDIA

Te Velde (2006) was the pioneering study to develop measures of SBRs quality. He argues that an SBR index should have four components, which reflect the main aspects of effective SBRs:

- 1) the way in which the private sector is organised vis-à-vis the public sector;
- 2) the way in which the public sector is organised vis-à-vis the private sector;
- 3) the practice and institutionalisation of SBRs;
- 4) the avoidance of harmful collusive behaviour between the two sectors.
- 5)

Each of the aspects mentioned above is captured through a SBR sub-index which in turn is derived from data on variables reflecting the above mentioned aspects. The various SBR sub-indices are then combined to arrive at an overall index of SBR. CMP measure SBR along the above four dimensions for 15 Indian states using both primary and secondary data. An important characteristic of this measure that is relevant for the empirical analysis in the paper is that it varies **both** over time and space, as the measure has been computed for the 15 major Indian states for the period 1988-2005. The time-series variation is particularly relevant in the case of India, where subnational institutions have evolved in very different ways following the economic reforms of the mid 1980s and early 1990s (Saez 2002). We describe below in short the manner CMP operationalise the measurement of SBR in India.

#### *The role of the private sector in SBR*

CMP measure the role of the private sector via the quality and effectiveness of the umbrella business association and two sector based business associations, as follows:

- a) Whether the private sector is organised through an **umbrella organisation** or not (a score of 1 is given in each year the association existed, 0 otherwise).
- b) Whether the private sector association has a **website** or not: This is likely to proxy for the quality of the organisational structure as well as its outside visibility. Evidence from CMP's fieldwork confirms that organisations appearing to be more structured and organised have had an active website in place for a longer time.
- c) How frequently the website is updated: Again, this captures the efficiency of internal processes (which makes frequent updates possible) as well as the level of activity of the organisation.
- d) The variable *office\_premise*, proxies the level of the organisation's resources as well as the extent to which the association is willing to invest in costly physical assets.

#### *The role of the public sector in SBR*

CMP measure the role of the public sector in SBR by the presence of state-owned or state participated productive corporations, which are investment promotion agencies, Financial, Infrastructure Development and Tourism Development Corporations. These represent important types of pro-business engagements having benefits for all sectors. CMP also assess the role of the public sector via the governments' signalling of their relative priorities through the allocation of public resources. In their work, they focus on two types of state **revenue expenditures**: expenditure on economic services as a ratio of total government expenditures and expenditure on industries as a ratio of total expenditures on economic services.

#### *The interaction between states and businesses*

In principle, the preferred approach to measure the interaction between the state and the business sector would be to incorporate the existence of a bilateral or joint economic council or institutionalised public-private dialogue and the frequency of formal meetings between the economic bureaucracy and the private sector.<sup>iii</sup> However, few Indian states have formal institutionalised processes in which interactions between government and the private sector take place. CMP's fieldwork suggests that these interactions are informal and need-based rather than characterised by a regular frequency. Therefore,

CMP measure the interaction between state governments and the business sector using two proxies for the interaction between the state and the business sector. These variables capture the outcomes of effective state-business interactions, rather than these interactions themselves. These are:

**a) Index of labour regulation:** This is the index constructed by Besley and Burgess (2004). The authors score each state level act on labour regulation as anti-worker (assigning -1), pro-worker (1) or neutral (0). In this way they produce a yearly cumulative index which may proxy for the relative effectiveness of the mentioned aspect of SBR. The argument is that more effective SBRs would allow employers to be more influential affecting on government policies and would get reflected in more pro-employer labour market regulation.

**b) Stamp Duty:** CMP take state-wise stamp duty as proxy for the attitude of the state governments towards business establishments and their expansion. These proxies are compelling because a stamp duty is a tax on the value of a transaction, most commonly on the transfer of movable and immovable properties and instruments used in commercial and business transactions. Stamp duties in India were among the highest in the world till the mid 1990s. There has been a decrease in stamp duty rates across several states since the late 1990s, though at different rates of decline. There is evidence to suggest that the decrease in stamp duty by state governments were in response to representations made by business associations to these governments. CMP assume that a decrease in the rate of stamp duty is an outcome of more synergistic government-business interactions.

#### *Mechanisms to avoid collusive behaviour*

Collusive behaviour may occur at two levels – firstly, in the interaction of state actors such bureaucrats and politicians with some private firms at the exclusion of others, and secondly, in the release of information about government policies or other relevant resources that matter for investment activities by a business association to some of its members and not to other members. To capture the avoidance of collusive behaviour between the state and the private sector, CMP use the following variable:

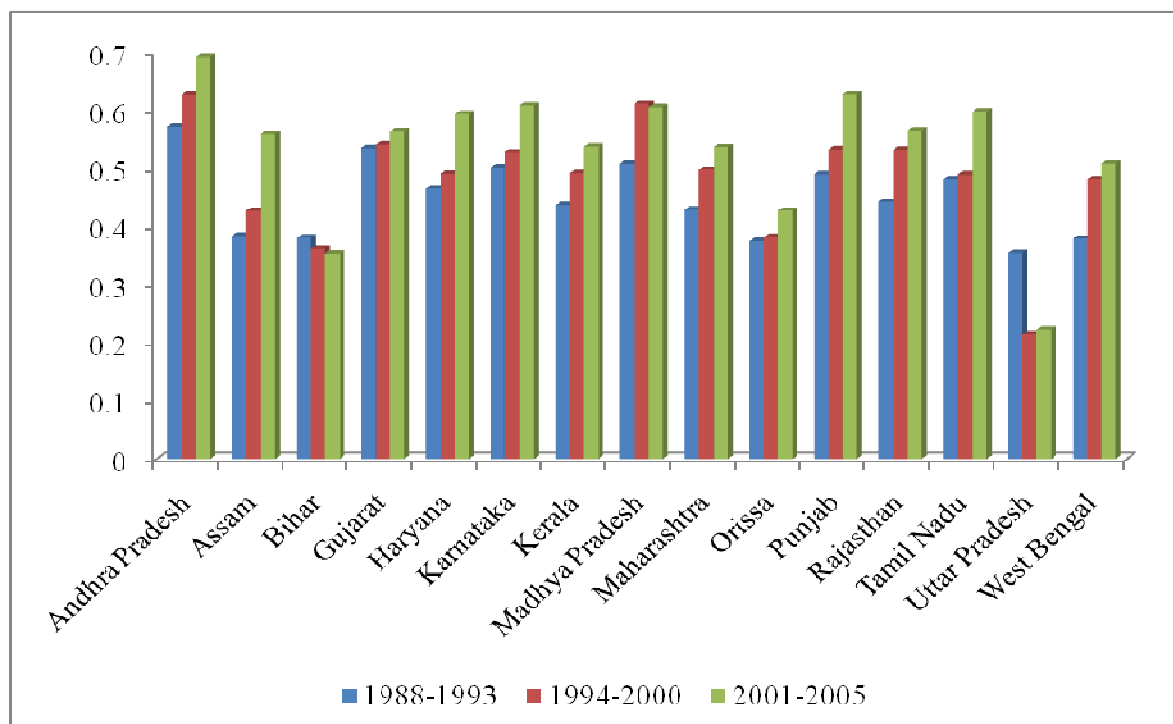
a) The gross output of firms belonging to **delicensed industries** as a proportion of total industrial GDP (data on delicensing from Aghion *et al.* 2006; data on firms by sector in the Annual Survey of Industries). As the decision of which industries to delicense was made at the central level, this effectively provides an exogenous source of change in the possible extent of collusive behaviour at the state level.

b) To capture the lack of collusive behaviour within the private sector, CMP determine whether the private sector umbrella association has a **regular publication** informing its members (and since when has such a publication been available). This measure proxies for the transparency of the organisation's activities. Higher transparency would be associated with lower probability of collusive behaviour which may harm business not entrenched with public authorities.

As CMP correctly argue, the indices constructed through these variables have two main advantages over the traditional investment climate indicators. First, they cover a larger time span than any other indicators on Indian states. This allows one to examine the evolution of the relevant economic institution over different periods. Second, by not being based on firms' perceptions, they avoid the measurement error problem typical of subjective survey response data. Bertrand and Mullainathan (2001) argue that the likely causal correlation of this measurement error with dependent variables may generate biased estimated coefficients. Carlin *et al.* (2009) explain along these lines the problem of interpreting the coefficients of standard cross-country regressions where a productivity or income measure is regressed on subjective constraints.

CMP normalize the data so as to make the variables vary over a common range and to make the increase in a variable signal an improvement in the index. While CMP used different weighting procedures in the construction of the SBR private variable, we use the weighting procedure where the apex business association is assigned a value of 0.5 and the two sectoral associations are assigned a value of 0.25 each.<sup>iv</sup>

In Figure 1, we present the period averaged SBR measures for 1988-1993, 1994-2000 and 2001-2005. As is clear, there is considerable improvement in state-business relations over time in major Indian states. Only in Bihar and Uttar Pradesh, SBR has declined over the period 1988-2005. Assam has shown the highest improvement in the effectiveness of state-business relations over 17 years period. We also observe strong differences in the effectiveness of state-business relations across Indian states. These differences seem to have persisted over time. Bihar, Uttar Pradesh and Orissa, among the less industrialized states, have the least degree of effectiveness of state-business relations while Andhra Pradesh, Punjab and Tamil Nadu, the more progressive states, have the highest degree of effectiveness as reflected in the SBR measure.



Source: CMP (2009)

**Figure 1: State-Business Relations, 1988-1993, 1994-2000 and 2001-2005 across Indian states**

#### 4. DATA AND METHODOLOGY

##### *Data*

We use unit level data for the formal manufacturing sector for four years – 1989-90, 1994-95, 2000-01 and 2004-05. The data source for this study is the Annual Survey of Industries (ASI), undertaken by the Central Statistical Organisation (CSO). The ASI is the census survey of all the formal manufacturing units for all the industries across all the states. The data is collected every year from all the units registered under the Indian Factories Act of 1948.<sup>v</sup> CSO is the agency that collects information on various aspects of the functioning units. The information collected include - gross output, number of workers, gross fixed assets, electricity and materials consumed, ownership, profit etc. at the unit level. Data are in the form of repeated cross-sections, and not in panel form. This is because the CSO do not reveal the identity of the firm/plant in the unit record data.<sup>vi</sup> This forced us to pool the data instead of running a panel data model.

Many variables in the ASI dataset had to be standardised for consistency across the years. We have omitted observations for which real value added, real capital and the labour variables are less than or equal to zero. Real value added is obtained by deflating nominal value added using the wholesale price index (WPI) for manufactured products at the four digit industry level. Labour is measured as total number of persons engaged in the production activity, which include production workers as well as employees. Real capital stock is constructed by deflating gross fixed assets by WPI for machine and machinery tools. Since we have a repeated cross section dataset, we could not construct capital series using perpetual-inventory method. Finally, nominal value of materials is converted to real value by dividing the former by WPI for all commodities.

##### *Methodology*

Our variable of interest is the measure of state-business relations that we described in Section III and its effect on firm's total factor productivity (TFP). To test the effect of SBR on TFP, we estimate augmented production function as follows:

$$Y_{isjt} = a_0 + a_1 K_{isjt} + a_2 L_{isjt} + a_3 SBR_s + \partial_i + T + e_{isj} \quad (1)$$

where *i* stands for industry, *s* for state, *j* for firm and *t* for time. *Y* is the log of real value added, *K* is the log of real capital employed, *L* is the log of the number of employees, *SBR* is our measure of state-business relations,  $\partial_i$  are industry fixed effects and *e* is the error term. The *SBR* variable is in the form of period average, i.e., we use *SBR* averaged over 1983-1988, 1988-1993, 1994-2000 and 2001-2005 for 1989-90, 1994-95, 2000-01 and 2004-05 respectively.

We would expect that  $a_3$  is positive and significant – i.e., more effective *SBR* (as captured by a higher *SBR* score) should lead to improved total factor productivity. We estimate equation 1 by pooling the cross sectional data for four years – 1989-90, 1994-95, 2000-01 and 2005-06. Since we have pooled the data, *T* captures any macro-economic shock affecting the productivity for these years.

The industry fixed effects capture industry-specific differences in technology which would be correlated with TFP. They also capture other industry specific differences which would affect TFP such as differences in market structure and trade orientation. The estimation of equation 1 using Ordinary Least Squares (OLS) can result in bias in estimate of  $a_1$ , as unobserved technology shocks may be correlated with both, capital stock and output. In order to correct for this, we estimate equation (1) using instrumental variables method with materials as an instrument for capital stock.

Equation (1) assumes that effective state-business relations would affect all firms equally, regardless of their internal characteristics. However, as the literature on the institutional determinants of firm performance suggest, firm specific characteristics such as firm size, location, age and organisational form are crucial in explaining why some firms perform better than others. We would expect that for a given Indian state, some

firms would be better positioned or more competent to take advantage of effective SBR, given their institutional characteristics. We thus investigate the impact of effective SBRs on firm performance across various firm-specific characteristics. We explore four such characteristics – the size of the firm (*SIZE*), the age of the firm (*AGE*), whether the firm is located in an urban area (*URBAN*) and the organisational form of the firm, captured by whether the firm is an individual proprietorship or not (*ORG*).

With regard to firm size, we expect that smaller firms are more likely to benefit from improved SBRs that lead to better provision of public goods and greater information flows from government departments to the business associations small firms belong to. Also, smaller firms would not have the individual capacities of the larger firms to lobby for changes in policies and would benefit from stronger business associations that can lobby on their behalf. With respect to firm age, we expect that older firms would benefit more from effective SBRs as they are more likely to be members of business associations than younger firms. With respect to location, firms in urban areas are more likely to be members of business associations and may be able to access the public goods that more effective SBRs may help provide.

With respect to organisational form, our conjecture is that firms with more public participation are more likely to benefit from effective SBRs, as compared to privately owned firms. For a country like India where regulations abound, and many of the privately-owned firms often lack information for other key aspects of business such as finance, taxation etc., the firms having diffused ownership will lobby government more effectively than their private counterparts.

We measure firm size, firm location and firm age as binary variables – for firm size, a value of one if the firm has more than 50 employees, zero if not; for firm location, value of one if the firm is located in an urban area, a value of zero if not, and for firm age, a value of one for firms which have completed more than 10 years since inception, and a value of zero for those who have not. For measuring organisational form, we have used an ordered variable with five organisational types in the order of increasing public involvement in these firms: the value '1' is assigned to individual proprietorship firms, '2' to joint family firms, '3' to partnership firms, '4' to private limited companies and '5' to public limited companies.

The augmented specification with the interaction variables between SBR and firm size, location, age and organisational form is presented in equation (2) below:

$$Y_{isjt} = a_0 + a_1 K_{isjt} + a_2 L_{isjt} + a_3 SBR_{st} + a_4 SBR_{st} * SIZE_{isjt} + a_5 SBR_{st} * URBAN_{isjt} + a_6 SBR_{st} * AGE_{isjt} + a_7 SBR_{st} * ORG_{isjt} + \delta_i + T + e_{isj} \quad (2)$$

Where we expect that  $a_4$  is negative, while  $a_5, a_6$  and  $a_7$  are positive.

We present the results of the estimates of equations (1) and (2) in the next section.

## 5. RESULTS

Summary statistics for our key variables are presented in Table 1. We have data for 118,164 firms over the period 1989-90-2004-05. Given our data, which has all the units in the formal manufacturing sector irrespective of size, nature of production etc., most production function variables show high variation. As we use logged values for the analysis, the skewed nature of distribution of variables is less likely to affect the results of our analysis. Regarding SBR variables, the table indicates that it is the SBR practice that has wide variation across the states.

**Table 1: Summary Statistics (Averaged over 1988-2005) (N = 118,164)**

Variables	Mean	SD	Min	Max
GVA (x 10 <sup>6</sup> Rs.)	32.19	391.2		
Capital (x 10 <sup>6</sup> Rs.)	57.66	913.9		
Labour (No.)	175.59	819.67		
Fuel (x 10 <sup>6</sup> Rs.)	6.5	67.0		
Material (x 10 <sup>6</sup> Rs.)	78.8	1215.6		
SBR	0.171	0.022	0.12	0.225
SBRpvt	0.123	0.039	0.034	0.245
SBRpub	0.193	0.028	0.107	0.243
SBRpract	0.193	0.038	0.000003	0.247
SBRcollu	0.180	0.046	0.011	0.264

Notes: SD – Standard Deviation, MIN – Minimum, MAX – Maximum

Table 2 presents the estimates of equation 1. As mentioned before, we carried out the estimation using instrument variables method. This is done so as to overcome the endogeneity bias normally associated with production function estimations. The estimation of the coefficients of labour and capital using OLS method implicitly assumes that the input choices are determined exogenously. Firm's input choices can be endogenous too. For instance, the number of workers hired by a firm and the quantity of materials purchased may depend on unobserved productivity shocks. These are overlooked by the researcher but they certainly represent the part of TFP known to the firm. Since input choices and productivity are correlated, OLS estimation of production functions will yield biased parameter estimates. Wu-Hausman Test statistic that we estimated also indicates that endogeneity is a serious problem with our OLS estimations. Similarly, SBR variable may be endogenous to firm productivity in a particular state. There are two possible manners in which this may happen. More productive industries may be able to organize themselves better and bring out more effective SBRs. Also, the presence of good SBRs in a particular state may induce more productive firms from other states to relocate to that state. In order to control for the potential endogeneity of the SBR variable, we use an instrument based on the nature of the political regime in a given state. The instrument is derived from the results of the political elections at the state level. We exploit the fact that SBRs are the outcome of a political process, with different groupings in state legislatures (the Vidhan Sabha) having different propensity to engage with businesses. We use data from records of the number of seats won by different national parties at each of the state elections under four broad groupings in line with the classification by Besley and Burgess (2000). We express these as a share of total seats in the legislature. We use this instrument with two year lag. This makes sense as good SBR can drive election results in current period.

Similarly, land reform was implemented under the 1949 Indian legislation, according to which states are granted the powers to enact (and implement) land reforms. There are significant differences in the intensity with which states have enacted the various types of land reform legislation over time. We use the measure of intensity of land reform across different states as constructed by Besley and Burgess (2000). Since there has not been any major land reform legislation since 1992 (see World Bank 2007), we retain the same values for the land reform variable for the post-1992 period. We postulate that the political process underlying SBR was the mirror image to that underlying land reform legislation. States which implemented land reform aggressively were likely to be concerned mainly with the rural sector and the rural poor, while being relatively insensitive to the needs of the industrialists.

Given the endogeneity problem with two of our key variables, to correct these biases, we estimated using three stage least squares (3SLS) method with raw materials as

instrument for capital stock and share of seats of major parties and land reform as instruments for SBR.<sup>vii</sup>

Besides examining the impact of overall SBR measure, we have also studied the impact of four components of SBR (SBR private, SBR public, SBR practice and SBR collusive) on firm performance. The main inspiration to study the impact of each component separately is to see which of the components confers maximum advantage to the firm. If analysis finds some component to have insignificant impact, the obvious policy implication would be to strengthen it so as to positively influence the productivity growth.

As is evident from Table 2,<sup>viii</sup> the coefficients on labour and capital inputs have the expected signs and are statistically significant at the 1 per cent level. It is also clear that state-business relation (row 3, column 1) is a key factor influencing firm productivity over the period 1988-2005. Results further indicate that SBR private (column 2), SBR public (column 3) and SBR practice (column 4) components have a positive and significant effect on TFP while SBR collusive dimension seem to make a negative impact on firm performance, which is counter-intuitive and requires further analysis. Evidently, it is the private, public and practice dimensions of the SBR measure that have contributed to the overall positive impact of effective SBR on firm performance.

**Table 2: Effect of SBR on Firm productivity - 3SLS estimates**

Variables	(1)	(2)	(3)	(4)	(5)
1 Labour	0.812** * (0.00564)	0.822** * (0.00568)	0.810** * (0.00564)	0.811** * (0.00564)	0.825** * (0.00581)
2 Capital	0.461** * (0.00448)	0.452** * (0.00453)	0.461** * (0.00448)	0.461** * (0.00448)	0.453** * (0.00460)
3 SBR	1.872** * (0.273)				
4 SBRpvt		2.528** * (0.232)			
5 SBRpub			1.576** * (0.216)		
6 SBRpract				0.647** * (0.109)	
7 SBRcollu					- 0.987** * (0.190)
8 Constant	4.564** * (0.128)	4.669** * (0.122)	4.544** * (0.127)	4.657** * (0.124)	4.970** * (0.126)
9 Ind. Dummies	Yes	Yes	Yes	Yes	Yes
10 Year dummies	Yes	Yes	Yes	Yes	Yes
11 N	118164	118164	118164	118164	118164
12 R-squared	0.744	0.748	0.743	0.744	0.745

Note: Standard errors in parentheses: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

We next present 3SLS estimates of equation 2 in Tables 3 to 6, interacting SBR variable and its four components with each of the firm characteristics in turn – firm size, location, age and firm organisation. Since the interaction variables are very likely to be collinear, we enter these interaction variables one by one, rather than jointly.

As is evident from Table 3, the effect of SBR differs across firm size. It is observed that the interaction term between firm size and SBR is negative and significant in all cases, barring SBR collusive, suggesting that smaller firms benefit more with better SBR. It is possible that a good business environment eases the growth constraints faced by small firms (Ayyagari and Maksimovic 2008).<sup>ix</sup> A similar argument is also posed by Dollar *et al.* (2005) that smaller firms could benefit from more effective SBR, provided they have access to better infrastructure. According to Hallward-Driemeier and Stewart (2004), smaller firms stand to gain more from broad-based investment climate improvements than larger firms.

**Table 3: Size as Firm Characteristic – 3SLS estimates**

Variables	(1)	(2)	(3)	(4)	(5)
Labour	0.830*** (0.00637)	0.838*** (0.00665)	0.835*** (0.00640)	0.823*** (0.00638)	0.827*** (0.00641)
Capital	0.460*** (0.00448)	0.452*** (0.00453)	0.461*** (0.00448)	0.461*** (0.00448)	0.454*** (0.00458)
SBR	2.007*** (0.277)				
Size*SBR	-0.366*** (0.0588)				
SBRpvt		2.648*** (0.251)			
Size*SBRpvt		-0.461*** (0.0885)			
SBRpub			1.792*** (0.224)		
Size*SBRpub			-0.445*** (0.0529)		
SBRpract				0.774*** (0.118)	
Size*SBRprac				-0.206*** (0.0510)	
SBRcollu					-0.911*** (0.200)
Size*SBRcolu					-0.0712 (0.0597)
Constant	4.506*** (0.129)	4.618*** (0.123)	4.456*** (0.128)	4.613*** (0.125)	4.947*** (0.128)
Ind. Dummy	Yes	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes
N	118164	118164	118164	118164	118164
R-squared	0.744	0.748	0.743	0.744	0.745

Note: Same as Table 2.

**Table 4: Location as Firm characteristic – 3SLS Estimates**

Variables	(1)	(2)	(3)	(4)	(5)
Labour	0.805** *	0.812** *	0.801** *	0.806** *	0.810** *
	(0.0068 1)	(0.0068 9)	(0.0068 2)	(0.0068 6)	(0.0068 7)
Capital	0.454** *	0.449** *	0.455** *	0.453** *	0.450** *
	(0.0053 8)	(0.0054 9)	(0.0053 9)	(0.0054 2)	(0.0054 3)
SBR	- 0.00245 (0.286)				
Urban*SBR	0.232** * (0.0467 )				
SBRpvt		0.373 (0.264)			
Urban*SBRpvt		0.256** * (0.0714 )			
SBRpub			0.472** (0.220)		
Urban*SBRpub			0.174** * (0.0435 )		
SBRpract				0.488** (0.195)	
Urban*SBRprac				0.294** * (0.0414 )	
SBRcollu					- 1.263** * (0.239)
Urban*SBRcollu					0.237** * (0.0455)
Constant	4.765** * (0.144)	4.782** * (0.139)	4.644** * (0.143)	4.596** * (0.145)	4.924** * (0.142)
Ind. Dummy	Yes	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes
N	74053	74053	74053	74053	74053
R-squared	0.780	0.781	0.779	0.780	0.780

Notes: Sector-wise (Rural and Urban) classification was not available for the year 1994-95. As a result, estimates are for the pooled data for three years only, 1989-90, 2000-01 and 2004-05; Standard errors are in parentheses: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Table 5: Age as Firm characteristic – 3SLS Estimates**

Variables	(1)	(2)	(3)	(4)	(5)
Labour	0.800** *	0.816** *	0.799** *	0.795** *	0.813** *
	(0.00589)	(0.00599)	(0.00590)	(0.00585)	(0.00599)
Capital	0.466** *	0.454** *	0.466** *	0.469** *	0.458** *
	(0.00457)	(0.00466)	(0.00458)	(0.00454)	(0.00466)
SBR	1.837** *				
	(0.277)				
Age*SBR	-0.0338 (0.0399)				
SBR*pvt		2.781** *			
		(0.257)			
Age*SBRpvt		- 0.338** *			
		(0.0625)			
SBRpub			1.537** *		
			(0.220)		
Age*SBRpub			-0.0371 (0.0358)		
			)		
SBRpract				0.564** *	
				(0.113)	
Age*SBRprac				0.0687* *	
				(0.0347)	
SBRcollu					- 1.006** *
					(0.201)
Age*SBRcollu					-0.0390 (0.0392)
Constant	4.535** *	4.646** *	4.512** *	4.607** *	4.957** *
	(0.129)	(0.123)	(0.127)	(0.124)	(0.126)
Ind. dummy	Yes	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes
N	117970	117970	117970	117970	117970
R2	0.745	0.748	0.744	0.744	0.746

Note: Same as Table 2

**Table 6: Organisation Type as Firm characteristic – 3SLS Estimates**

Variab	(1)	(2)	(3)	(4)	(5)
Labour	0.820** *	0.825** *	0.817** *	0.829** *	0.838** *
	(0.00609 )	(0.0060 5)	(0.0061 0)	(0.0061 8)	(0.0063 3)
Capital	0.434** *	0.438** *	0.438** *	0.424** *	0.416** *
	(0.00552 )	(0.0053 6)	(0.0055 2)	(0.0055 9)	(0.0058 4)
SBR	0.395 (0.297)				
Org*SBR	0.390** *				
	(0.0157)				
SBRpvt		0.887** *			
		(0.307)			
Org*SBRpvt		0.368** *			
		(0.0257 )			
SBRpub			0.476** (0.243)		
Org*SBRpub			0.307** *		
			(0.0145 )		
SBRpract				- 0.586** *	
				(0.132)	
Org*SBRprac				0.385** *	
				(0.0142)	
SBRcollu					- 3.059** *
					(0.244)
Org*SBRcollu					0.453** *
					(0.0174)
Constant	4.989** *	4.963** *	4.919** *	5.137** *	5.537** *
	(0.143)	(0.136)	(0.142)	(0.139)	(0.145)
Ind. dummy	Yes	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes
N	112503	112503	112503	112503	112503
R-squared	0.747	0.750	0.745	0.748	0.747

Standard errors in parentheses: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

As conjectured, we find from Table 4 that the impact of effective SBR is more pronounced for firms located in urban areas than those located in rural areas – the interaction term between URBAN and SBR is positive and significant in all the cases. We however do not find any conclusive evidence to prove that the impact of SBR on firm performance changes with age of the firm (Table 5). This is because the interaction term between AGE and SBR is not significant in most of the cases. As regards the private

dimension of SBR, we find that its impact on firm performance increases with age of the firm while the converse is true with regard to the practice dimension of SBR. Does this mean that younger firms have more sway in influencing stamp duty or the labour market institutions in a state? We do not have sufficient information to substantiate these, but they open up avenues for further research. With respect to organisation type, as anticipated, we find that more effective SBR provides greater benefits to firms with more public involvement or firms with diffused ownership (Table 6). The interaction term is positive and significant for overall SBR and all the four dimensions of SBR. Incidentally, the overall effect of SBR practice and collusion seem to favour firms that are closely held. One possibility could be that it is these firms which require maximum information and other support from SBR.

## **6. CONCLUSIONS**

In this paper, we examine the institutional determinants of firm performance. In contrast to the previous literature which focuses mainly on institutional determinants which are internal to the firm such as managerial capabilities and technological competencies, we focus on the external institutional environment that may affect firm performance. We identify this as effective state-business relations, which are synergistic relationships between the state and the business sector, Using a measure of effective state-business relations developed by Cali *et al.* (2009) and pooled cross sectional data for the Indian formal manufacturing firms for 1989-90 to 2004-05, we show that effective state-business relations have had a significant positive effect on total factor productivity for formal manufacturing sector firms in India. We also find that the effect of the external institutional environment on firm performance is dependent on specific firm characteristics – firms with certain characteristics are more likely to benefit from effective state-business relations than others. We find that smaller firms, firms in urban areas, and firms with diffused ownership (more public participation) do better with more effective state-business relations. This suggests that both internal and external institutional factors matter for firm performance and the effects of external and internal institutional determinants on firm performance are strongly complementary.

Our disaggregated analysis of which dimension of state-business relations matter most for firm performance suggest that the private, public and practice components contribute to the overall impact of effective SBR on firm performance. However, the collusive dimension of effective state-business relations seems to have a negative effect on TFP. Thus our results suggest that there is a need to ensure greater transparency in the flow of information between state actors and the business sector that would considerably enhance the use of resources for most productive uses by the business sector. Overall, our finding points to the need to strengthen the collaborative relationships between the state and the business sector to enhance the performance of firms in the manufacturing sector. As has been witnessed in the cases of South Korea and Taiwan, the formalisation of interactions between the state and the business sector can occur through public-private dialogues on issues having direct implications for firms' growth.

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## End Notes

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<sup>i</sup> An alternate set of arguments on the external institutional determinants of firm performance, propounded by the World Bank, among others, is that the investment climate – understood to be the institutional, policy and regulatory environment in which firms operate – has a strong impact on firm performance. However, as Moore and Schmitz (2008, p. 10) have argued, “the core conceptual problem with (this view) is that government and political power are viewed primarily as persistent threats to capital, investment and economic growth. From that perspective, the policy mission is to curtail the influence of political power through formal rules, laws and institutions. If that mission fails, politicians are expected at least to maltreat the private economy, and possibly to loot it, and thus, undercut economic growth.” Thus, there is a strong assumption in this literature that the state, by its very nature, is always predatory, and cannot be developmental in most instances of its manifestations. In this paper, we take an opposite view: that ‘good growth-enhancing relations between business and government elites are possible’ (Maxfield and Schneider 1997) and that effective state-business relations are the core external institutional determinants of firm performance.

<sup>ii</sup> See Qureshi and te Velde (2007) and Sen and te Velde (2009) for evidence that improvements in state-business relations improve economic performance both at the micro and macro levels, for Sub Saharan Africa.

<sup>iii</sup> For example, Te Velde (2006) measure the role of the public sector by the existence of a Joint Economic council in the Sub-Saharan African case.

<sup>iv</sup> We have experimented with different weights for the apex and the two sectoral business associations in the construction of the SBR private variable with no change in the results.

<sup>v</sup> The enterprises which employ less than 20 workers without the use of electricity or 10 workers with the use of electricity or are not producing hazardous substances (such as chemicals) fall under the unorganized/informal sector, as these are firms that are not required to register with the authorities under the Indian Factories Act of 1948.

As in 2000, the states of Bihar, Madhya Pradesh and Uttar Pradesh were bifurcated to form new states Uttrakhand, Chattisgarh and Jharkhand. For the present analysis, these three states were merged with their parent states so as to have consistency with the SBR variable.

<sup>vii</sup> All estimations were carried out in STATA 11.

<sup>viii</sup> First stage results of different 3SLS models are available from authors on request.

<sup>ix</sup> Ayyagari and Maksimovic (2008) demonstrate that a good business environment improves the growth of industries that are naturally composed of small firms more than large-firm industries. In their view, small firm dominated industries gain from less stringent and more business friendly regulations associated with starting and closing a business, licensing requirements, exporting and importing, employment hiring and firing decisions, paying taxes, protecting investors and obtaining credit.