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Do Effective State Business Relations Matter for Economic Growth? Evidence from Indian States

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Summary. — Effective state–business relations are a set of highly institutionalised, responsive and public interactions between the state and the business sector. This paper examines the impact of effective state–business relations on economic growth across Indian states over the period 1985–2006. We propose a measure that captures the various dimensions of effective state–business relations at the sub-national level, and estimate standard growth regressions using dynamic panel data methods. Our results show that effective state–business relations contribute significantly to economic growth and appear to be driven by the intensity of the interactions between the state and the private sector.

Key words — state–business relations, institutions, economic growth, Asia, India

1. INTRODUCTION

There is close to an intellectual consensus that political institutions of relatively limited government which provide for secure property rights for producers in the economy are fundamental determinants of differences in living standards across countries (Acemoglu, Johnson, & Robinson, 2001; Hall & Jones, 1999; Rodrik, Subramanian, & Trebbi, 2004). According to this literature, economic growth occurs in contexts where the state respects the property rights of private producers and where it does not expropriate property or allows others to do so. This view is principally informed by the neoclassical perspective on the state where its role should be confined to providing law and order and macroeconomic stability and not to intervene in the activities of private producers. However, as has been witnessed in East Asia, economic growth has occurred in contexts where there were strong collaborative relations between the political and economic elites. In contrast to the state's predatory role highlighted in the recent empirical literature on institutions and growth, there has been little recognition in this literature of the state's developmental role and that "good growth-enhancing relations between business and government elites are possible" (Maxfield & Schneider, 1997).

An earlier literature in political science and political economy has examined the proposition that collaborative relations between the state and the business sector can be growth-enhancing (Amsden, 1989; Evans, 1995). A key finding of these studies is that collaborative or effective state business relations usually requires that "the public bureaucracy should have the basic features of the Weberian model of bureaucracy: selection and promotion should be on the basis of merit and salary levels should be at least reasonably competitive" (Harriss, 2006, p. i). In addition, the literature has highlighted the importance of institutions that underpin effective state business relations that restrain opportunistic or rent-seeking behaviour on the part of the business sector along with well organised associations representing the private sector that are capable of collective action (Haggard, Maxfield, & Schneider, 1997). The empirical evidence in support of these findings has been mostly from case-studies, predominantly drawn from East Asia (Johnson, 1987) and some from Latin America (Doner & Schneider, 2000).

This paper deepens and extends the literature on state business relations in two significant ways. Firstly, it examines whether effective state business relations can be growth enhancing in an environment which is quite different from that observed in East Asia where the public bureaucracy had the basic features of Weberian type bureaucracy and where the disciplining role of the state was strong enough to restrain rent-seeking behaviour on the part of private capital. [1] We consider the growth effects of state business relations in the subnational level in India, a country where the "embedded autonomy" of the developmental state observed in East Asia has been largely absent (Evans, 1995). Understanding whether effective state business relations (SBRs) can make a difference to economic growth in environments with weaker state capacity is important in assessing the replicability of the East Asian model of collaborative relations between the state and business that can be growth enhancing to other contexts.

Secondly, in contrast to the case-study approach that has underpinned the methodology of previous studies on the relation between state business relations and economic growth, we

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use econometric analysis to test the hypothesis that effective SBRs matter in explaining economic growth at the subnational level in India, independent of other factors that may explain subnational growth.[2] We first propose a way of quantifying the degree of effectiveness of SBRs for fifteen Indian states for the period 1985–2006, developed by Calì, Mitra and Purohit (henceforth, CMP; 2011). The strength of our measure 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 regional growth in India. We then use this measure in dynamic panel data regressions and examine whether this measure can explain a significant part of the variations in *per capita* income across Indian states and over time, controlling for other determinants of state–level growth in India and the possibility of reverse causality from economic growth to improving state–business relations.

India provides a rich empirical context to study the impact of effective state–business relations on economic growth for two additional reasons. Firstly, while economic growth in India has been strong since the mid 1980s, not all regions in India have benefited equally from the improvement in overall economic performance. States like Andhra Pradesh, Gujarat, Karnataka, Kerala and Tamil Nadu have grown at a rate of *per capita* income which has exceeded 4.5% per annum during the period. On the other hand, states such as Assam, Bihar and Madhya Pradesh have grown at around 2% or less in the same period.[3] In contrast to the experience of China where geographical factors such as land-lockedness and access to the sea explain to a large extent the patterns of regional economic performance (Demurger *et al.,* 2002; Heilig, 2006; Kanbur & Zhang, 2005), there is no clear correlation between geography and regional growth in India. Land-locked states such as Punjab and Haryana have exhibited strong economic growth and coastal states such as Orissa have shown significantly weaker economic performance. The literature on the growing regional divergence in India has failed to convincingly identify which factor or set of factors may explain the differences in rates of economic growth across Indian states, and we will explore in this paper whether variations in regional institutional quality captured by effective SBRs can explain observed variations in economic growth in Indian states.[4]

Secondly, India's federal structure and the significant political autonomy and independence in legislative powers enjoyed by state governments, along with regional differences in the collective strength of the economic and political elite which have been shaped by historical factors, has resulted in strong variations in regional institutional quality and particularly, in the manner the subnational state interacted with the private sector (Sinha, 2005b). Furthermore, there was a gradual shift away from the command and control policy regime by the Indian government along with an attitudinal change on the part of India's political elite towards a more sympathetic view of the private sector in the early 1980s leading to "a critical juncture" in an opening up of both political and economic space for subnational governments to follow quite distinct paths with respect to the manner they interacted with the private sector (Kohli, 2006). Thus, both over time and across space, we would expect that state business relations would evolve in quite distinct ways in Indian states since the mid 1980s.

We find that our measure of effective state business relations shows an unambiguous improvement in state–business relationships across most Indian states over 1985–2006. However, we also find that the rate of improvement has differed widely across states, and has occurred at different points in time in different states. This suggests that state-specific political and economic factors have conditioned the nature of SBRs in any given state, and that these factors have differed across states and over time. Using the SBR measure in growth regressions, we also find that effective SBRs contributed significantly to economic growth across states in India. Interestingly, the results suggest that the key dimension of SBRs that stimulated economic growth seemed to be that related to the actual operations of the interactions between states and businesses. On the other hand the formal organisations (both public and private) in place to favour such interactions did not seem to stimulate growth and in the case of public sector organisations, they seem to be even counterproductive.

The remainder of the paper is organised as follows. In Section 2, we discuss the theoretical basis of why effective state–business relations may matter for economic growth. In Section 3, we describe the CMP measure of effective state–business relations and provide estimates of it for a set of fifteen Indian states for the period 1985–2006. In Section 4, we present the empirical specification, discuss the econometric methodology, and describe the data. Section 5 presents the results and Section 6 concludes.

2. WHY SHOULD EFFECTIVE STATE BUSINESS RELATIONS MATTER FOR ECONOMIC GROWTH?

The literature on SBRs takes the following elements as essential characteristics of effective SBRs (see Maxfield & Schneider, 1997): (i) *transparency:* whether there is a flow of accurate and reliable information, both ways, between business and government, and from representatives of business to their own members; (ii) *reciprocity:* whether there is capacity and autonomy of state actions to secure improved performance in return for subsidies; (iii) *credibility:* whether the state command credibility of the private sector, and whether capitalists are able to believe what state actors say; and (iv) whether there is mutual trust between the state and the business sector through transparency, reciprocity and credibility. Institutionalised processes which embed these elements in repeated interactions between state and business are more likely to lead to effective SBRs than informal and ad hoc or one-off processes. Such processes are likely to be growth enhancing by fulfilling a set of important economic functions and by resolving market and government failures common in many developing countries. We discuss next the mechanisms by which effective SBRs can have a positive impact on economic growth.

Effective SBRs can have a positive impact on economic growth by increasing both the rate of investment and the productivity of investment. With respect to the rate of investment, irreversibility and the possibility of delay are important considerations in the investment decision (Dixit & Pindyck, 1994; Pindyck, 1991). Plant and equipment investment can be considered "sunk costs" if capital, once installed, is firm- or industry-specific and cannot be put to productive use in a different activity or if secondary markets are not efficient. The decision to undertake an irreversible investment in an uncertain environment can be viewed as involving the exercising of an option—the option to wait for new information that might affect the desirability and timing of the investment. This opportunity cost can be substantial in most circumstances and a higher degree of uncertainty about the future can have a significant negative effect on investment. Effective SBRs that lead to credible commitment on the part of the government to certain policies can minimise uncertainties on future policy actions in the minds of investors, and by doing so, raise the rate of investment (Ibarra, 1995; Rodrik, 1991).

A second way that effective SBRs can lead to a higher rate of investment is by creating an institutional environment where the state provides high quality public goods that matter to the private sector such as infrastructure, effective public administration (or the lack of corruption) and secure property rights. Public investment in infrastructure is highly complementary to private investment in developing countries, and has strong "crowding in" effects (Blejer & Khan, 1984). A well organised private sector can make clear to the state where the priorities are for public investment and can monitor the quality of such investment. Such high quality investments are more likely to be forthcoming with a well organised and responsive state (Leftwich, 2009). Effective public administration and lack of expropriation of property rights of the private sector is more likely to occur with professionally run and well organised government agencies and through the direct and indirect pressures that business associations can place on government officials (Schmitter & Streeck, 1999).

Effective SBRs can also influence the productivity of investments. Peak and sectoral business associations that are active, independent of the state and representative of the private sector in the region, can resolve many of the collective action problems that are inherent in developing countries, where most firms are of small and medium size and are unable to articulate their views and concerns to agencies of the state. Such business associations can provide accurate information on current and future investment opportunities and potential problems to its members, invest in training of the workers of member firms, help in enforcing industry quality standards and voice the demands of its members to industry ministries and state investment agencies (Cammett, 2007). By doing so, such associations can minimise transactions and coordination costs and ensure that investments that are made by its members have the highest returns. Thus, business associations can contribute to increasing the productivity of its member firms by providing both market-supporting and market-complementing activities. 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 & Schneider, 2000, p. 264).

Institutionalised dialogue between the state and the private sector along with well organised business associations that monitor the activities of their members can resolve coordination failures in the investment decisions of both the public and the private sectors (Bardhan, 2005). In environments where firms are not vertically integrated and where private firms depend both on the state and on other private sector firms for the provision of key inputs, effective SBRs can minimise the "hold up" problems of suppliers failing to deliver their goods in time to downstream firms or when customers (including the government, a key procurer in developing countries) do not pay for the goods they purchase in time (Williamson, 1996). Finally, synergistic state–business relations along with a state that is relatively insulated from the private sector also minimise the possibility of rent-seeking and collusive behaviour which may lead to directly unproductive economic activities (Bhagwati, Brecher, & Srinivasan, 1984; Campos, 1993; Krueger, 1974). Thus, effective SBRs can be expected to increase the efficiency of investment and of overall productivity growth in the economy.

3. MEASURING EFFECTIVE STATE BUSINESS RELATIONS IN INDIA

To understand the effects of effective state–business relations on economic growth, we first need to understand the effectiveness of state–business relations in particular Indian states at particular points of time. To do this, we need to measure the effectiveness of state–business relations. The degree of effectiveness of SBRs can be measured in the following four dimensions (Te Velde, 2006):

(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 quality of interactions between state governments and the private sector;
(4) the avoidance of harmful collusive behaviour between the state and the private sector.

CMP construct a composite SBR measure based on the above four dimensions for sixteen Indian states to assess systematically the quality of SBRs across major Indian states over the post-independence period, using both primary and secondary data. [5] An important characteristic of this measure that is relevant for the empirical analysis in the paper is that it is varies both over time and space. [6] Thus, the variations in the measure both in the time-series and cross-sectional dimensions allow us to estimate the effects of effective SBRs on economic growth more precisely than may have been possible using cross-sectional measures of regional institutional quality such as the World Bank's Doing Business indicators which are only available for a few years (World Bank, 2009). 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; Sinha, 2004).

However, as with other measures of institutional quality that have been widely used in the literature, the SBR measure captures the formal interactions between states and business, and not the informal dimensions which can either support or corrode formalised and institutionalised processes of state business interactions (Moore & Schmitz, 2008). In addition, in order to obtain a time dimension to the SBR measure that would allow for a more robust econometric investigation of the effects of effective SBRs on economic growth, the proposed measure attempts to capture the *visible* or *observable* aspects of state–business relations which can be codified or quantified over time. As we discuss below, this implies that in certain components of the SBR measure, we use proxies or outcome variables as measures of effective state business interactions rather than capturing the actual processes themselves for lack of available data. Thus, the SBR measure that we discuss below essentially captures the measurable aspects and formal dimensions of effective state business relations, and the econometric analysis that we undertake with this measure attempts to identify the causal effects of the formal and measurable dimensions of effective state business relations. However, to the extent that we expect to find these formal dimensions significant in explaining economic growth, the lack of incorporation of the informal dimensions in effective state business relations will not invalidate our findings.

We now describe below the manner CMP operationalise the measurement of SBR in India.

(*a*) *The role of the private sector (SBR private)*

The most relevant way in which the private sector can organise itself is via an umbrella or apex business association

(Maxfield & Schneider, 1997). A major role of such an organisation is lobbying the government to produce legislations and regulations that may favour business. Most Indian states have had apex business associations in existence since independence. In addition, there are sectoral associations to represent the major industries in the state. But there are exceptions, such as Assam where the Federation of Industries & Commerce of North Eastern Region has been in existence only since 1992. A further indicator of the weakness of the private sector in Assam is that there is more than one apex business association, leading to lack of a unified voice for the private sector in their interactions with the state government. This is also the case in Bihar and West Bengal. CMP captured the organizational strength of the private sector by assessing whether the private sector was organised through an umbrella organisation or not and whether there were sectoral associations for the two major industries in a given state (a score of 1 is given in each year the association existed, 0 otherwise).

However, even in states where business associations have been present, not all these associations have been active or functioned effectively. In interviews with business association and their members, the regular communication of the association's activities through the internet was seen as a sign of an active business association. Many associations have not had a web-site or updated their web-site regularly. For example, the Madhya Pradesh Chamber of Commerce and Industry updated its website only once a month. In contrast, the PHD Chamber of Commerce and Industry in Haryana updated its website daily. CMP assessed whether the private sector association had a website or not as a proxy for the quality of the organisational structure as well as its outside visibility [7] and how frequently the website was updated [8] as a proxy for the intensity of the organisation's activity. [9]

Finally, whether the association owns its office premises is a good proxy for the level of the organisation's resources as well as the extent to which the association is willing to invest in costly physical assets, with owned premises suggesting a more established business association. [10]

(*b*) *The role of the public sector (SBR public)*

The organisations of the state that matter most for the private sector are state-owned or state-participated *productive corporations* such as Investment Promotion Agencies, Financial, Infrastructure Development and Tourism Development Corporations. In many Indian states, these corporations were set up under the initiative of a political leader who was strongly in favour of facilitating the growth of the private sector. For example, Andhra Pradesh's sixth state chief minister, Jalagam Vengala Rao, who held the post from 1973 to 1978 was widely considered to be pro-business. It was during this period that the State Finance Corporation and the Andhra Pradesh Industrial Development Corporation was created. In contrast, Assam had its Infrastructure Development Corporation established in 2001 while Bihar had its Infrastructure Development Corporation established only in 2006. CMP assess the organizational strength of the state in contributing to effective SBRs by constructing a cumulative sub-index ranging in value between 0 and 1 which is the average of four dummy variables, one for each organisation (the four organisations being Investment Promotion Agencies, Financial, Infrastructure Development and Tourism Development Corporations). At any point of time the dummy for an organisation takes the value of 1 if it is in place and 0 otherwise.

A second way that the state government can demonstrate its commitment to private sector development is by spending a significant proportion of the state budget on the industrial sector or economic services. For example, the government of Tamil Nadu has spent over an average of 25% of its budget on economic services. In contrast, the government of Kerala has spent around an average of 13% of its state budget on economic services. CMP measure the state government's commitment to the private sector in its resource allocation by the share of state expenditures on economic services as a ratio of total government expenditures and by the share of industry expenditures in total expenditures on economic services. Industry expenditure is that part of expenditure on economic services which is most closely related to the promotion of effective SBR. [11]

(*c*) *The interaction between states and businesses (SBR practice)*

Indian state governments have not had formal institutionalised processes such as bilateral or joint economic councils or institutionalised public–private dialogue within which interactions with the private sector have taken place. Rather, the interactions between state governments and the private sector have been typically informal and need-based. The quality of these informal interactions and how willing the state government is to listen to the concerns of the private sector will determine whether the state government is willing to change policies or regulations which the private sector sees as being detrimental to growth.

One major area of concern for the private sector across Indian states is labour regulation. Stringent labour regulation which makes it difficult for private sector firms to fire workers can be detrimental to the growth of the private sector, which often considers labour laws as a hindrance to international competitiveness (see e.g., FICCI, 2007). Labour laws in India fall under the joint jurisdiction of the central and state governments and are governed by the Industrial Disputes Act (IDA), 1947. The private sector in India has been very active in lobbying both the federal and the state governments about the importance of more flexible labour regulation (e.g., Business Line, 2001; Business Line, 2004; Express Textile, 2003). It is plausible to assume that in those instances where such lobbying efforts have been more successful, more liberal labour regulation has followed. For example, Besley and Burgess (2004) have found that the government of West Bengal has enacted among the most pro-worker set of labour laws, especially during a period when the state government in power was hostile towards the private sector, which was not able to lobby it effectively (Chakravarty & Bose, 2009).

CMP use the index of labour regulation proposed by Besley and Burgess (2004), who code each state amendment to the IDA as neutral (0), pro-worker (+1) and pro-employer (−1), and then cumulate the scores over time for the period 1947–97. [12] Thus, a closer degree of interaction between business and state governments would be reflected in more pro-employer labour market regulation. [13]

Taxes are another area of important concern for the private sector. State governments in India do not have much discretion in setting tax rates. One set of taxes they do have some discretion over is stamp duty, which is a tax on the value of a transaction such as the transfer of movable and immovable properties and instruments used in commercial and business transactions. We argue that stamp duty is a good proxy for the attitude of the state governments towards business establishments and their expansion. Stamp duties in Indian states have been among the highest in the world and till the mid 1990s, most Indian states had stamp duty rates well above

10% (Alm, Annez, & Modi, 2004). Since the late 1990s, there has been a decrease in stamp duty rates across several states, in part due to the lobbying of business associations such as the Federation of Indian Chamber of Commerce and Industry (FICCI) and the Confederation of Indian Industry (CII). Indeed the reduction of stamp duty has been one of the areas where business associations have lobbied state governments most vocally. [14]

However, different Indian state governments have reduced stamp duties at different rates, suggesting that some state governments have been more influenced by their interactions with the private sector than others. For example, West Bengal had a very high rate of stamp duty of over 20% till 1993 but reduced it to 14% by 1996. Therefore, a decrease in the rate of stamp duty is an outcome of more synergistic government–business interactions.

(d) Mechanisms to avoid collusive behaviour (SBR collusive)

Collusive behaviour may occur at two levels—first, in the collusion of the state government with some firms in the private sector, and second, in the selective release of policy and investment information by business associations to some of its members to the exclusion of others. In India, following industrial delicensing first partially in 1985 and then more completely in 1991, the "license raj" was eliminated, leading to greater competition in most industries. In this sense, there was likely to be a reduced possibility of collusive behaviour between state governments and the private sector since the early 1990s (Aghion, Burgess, Redding, & Zilibotti, 2006). To capture the avoidance of collusive behaviour between the state and the private sector, CMP use the gross output of firms belonging to delicensed industries as a proportion of total industrial GDP.

However, there was still a possibility of collusiveness within the private sector if key private sector associations were not releasing information they were obtaining from the state government and other sources in a timely manner to all their members. Many state level business associations in India have not been proactive in providing information to their members on a regular basis. For example, the Associated Chambers of Commerce and Industry of Uttar Pradesh have not had an annual publication for its members till 1994. In contrast, the Bihar Industries Association has had an annual publication for its members since 1982. To capture the avoidance of collusive behaviour within the business sector, CMP assess whether the private sector umbrella association has a regular publication informing its members and the frequency with which the publication is produced and distributed. As in the case of the organisation's website, the frequency of the association's publications would also determine the level of transparency in the association's activities. [15]

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 India 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).

CMP normalise the data so as to make the individual variables vary over a common range and to make the increase in a variable signal an improvement in the index. Then they use equal weights for each of the sub-components of the four dimensions of effective SBRs to arrive at the four components of SBR Private, SBR Public, SBR Practice and SBR Collusive, which are then aggregated to obtain the overall SBR measure. [16]

Figure 1 captures movements of state-wise SBR measures in the period 1985–2006. We can infer that the SBRs of Southern states—Andhra Pradesh, Karnataka, TN, and Kerala—show similar movements and generally show an upward trend. The initial values of the SBR index for Karnataka and Tamil Nadu are relatively higher than those of other states. However, for Andhra Pradesh, the SBR index has moved the fastest among all the southern states. Kerala has shown significant improvement only recently. Amongst the states in Eastern, Northern and Western India, there has not been much improvement in Bihar and Madhya Pradesh over time. In the case of West Bengal, the SBR index started at a relatively high level, went into deep decline in the late 1980s with recovery starting only in the mid 1990s. Are these different patterns of SBR evolution across Indian states causally related to economic growth in these states? We next set out our empirical strategy which we will employ to address this question.

4. EMPIRICAL STRATEGY, DATA AND DESCRIPTIVE STATISTICS

In this section, we present the empirical specification used in the regressions, discuss the econometric methodology and describe the data.

(a) Empirical specification

Our interest centers around the effect of our measure of state business relations on state level *per capita* incomes. We estimate regressions of the following generic form:

$$Y_{it} = \alpha + \beta_0 Y_{it-1} + \sum_k \beta_k X_{ikt} + \rho \mathrm{SBR}_{it} + v_t + u_i + \varphi_i + e_{it}, \quad (1)$$

where i designates the state, t designates time, Y is the logarithm of real GDP (state domestic product) *per capita,* SBR_{it} is our measure of state–business relations described in the previous section, and X_{ikt} is a vector of standard control variables. The error terms v_t and u_i capture the time-invariant and state-invariant components of the error term, φ_i represents state-specific time trend, while e_{it} is the white noise component of the error term. The presence of the lagged GDP term, Y_{it-1} captures two important and opposite effects on growth. Firstly, it captures path dependence in growth experiences as has been found to be the case in most historical accounts of economic growth (Rodrik, 2003). This would determine a positive coefficient of the lagged GDP term. Secondly, it captures the conditional convergence hypothesis predicted by the neoclassical theory of economic growth—this channel would push the coefficient of the lagged GDP term in the other direction (i.e., negative), as countries are experiencing a slowdown in economic growth relative to their steady-state output level (Barro & Sala-i-Martin, 1992; Caselli, Esquivel, & Lefort, 1996; Islam, 1995). The year effects v_t have been included to capture year-specific national level shocks, such as weather shocks (e.g., monsoon failures), oil price shocks, and other macroeconomic shocks that may affect output across all states in a given year. In addition, to the extent that both SBR and growth rate at the national level experience a common increasing trend over time, not including year effects would incur the risk of generating a spurious relationship between the two variables. The state specific effects u_i

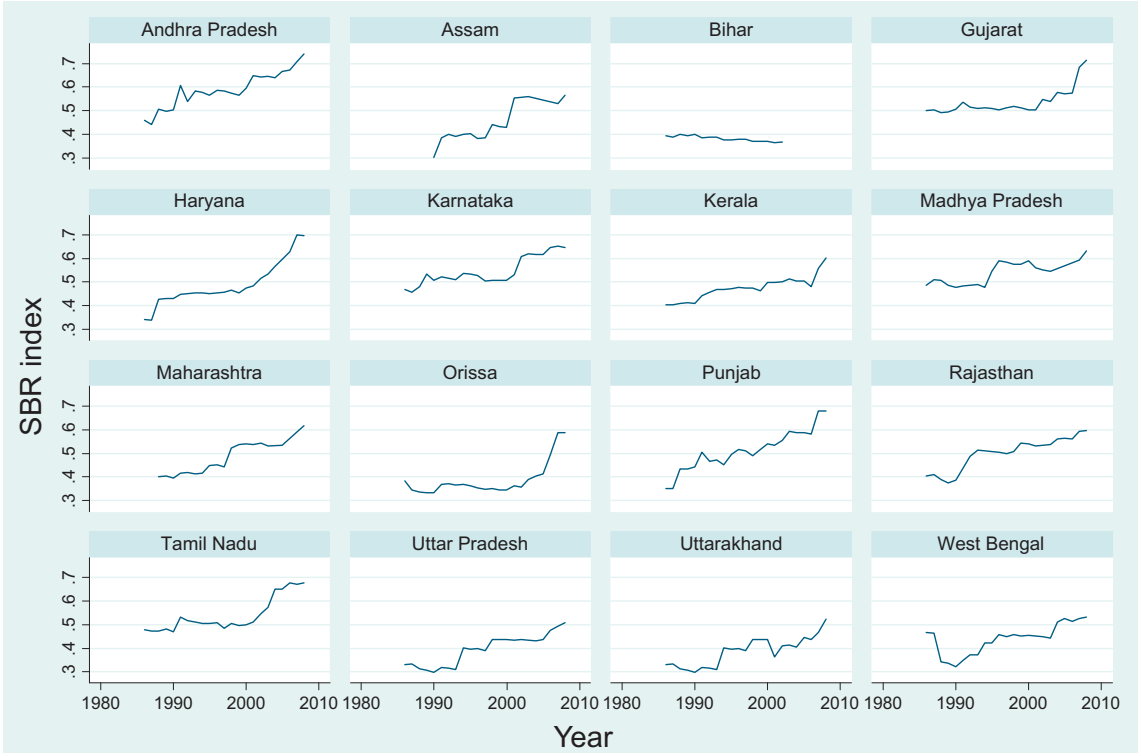

Figure 1. *Evolution of the effectiveness of state business relation measure in Indian states, 1985–2006.*

capture innate cultural and geographical properties of states (such as differences in agroclimactic factors and whether a state is land-locked or coastal) that are time-invariant, and may have an important role in explaining economic growth across Indian states (Palmer-Jones & Sen, 2003).

With respect to the control variables, we experiment with two sets of such variables. We have a basic set of control variables which are demographic factors such as rural and urban population and the female–male ratio. In addition, we introduce dummies for the split of the states of Bihar, Madhya Pradesh and Uttar Pradesh in 2000, which would have impacted on economic activity in these three states since 2000. In some regressions, we also introduce some additional controls to test for the robustness of our results. These controls include proxies for human and physical capital which are arguments of the standard production function. Among the human capital variables, we first experiment with a full set of controls, including literacy rate and *per capita* expenditures by the state on education and health to capture for the effect of human capital formation on economic growth (Mankiw, Romer, & Weil, 1992).[17] However the high correlation between these three variables creates a potential problem of multi-collinearity in the regression using all three variables. The results of such regression (not shown here) suggest including only educational expenditure as control for human capital. We also control for the real cost of power supply as an indirect proxy for investments in infrastructure and state-specific average rainfall per year to take into account the differential effects that variations in rainfall across India for a particular year may have on state-level agricultural incomes.[18]

Finally, we also include state-specific time trends in addition to year and state effects to capture state-specific long term trends of SBRs and growth. For example these may capture differential rates of change in technology underlying the very different cropping patterns in agriculture across our fifteen states. Imagine a state whose major crop is subject to a technological breakthrough, which drastically increases the productivity of its cultivation over time. This would have a long-term growth enhancing effect, which is independent of any evolution in the state's economic institutions, such as SBRs. Failing to control for such trend could generate a bias in the SBR coefficient if this is also characterised by a time trend. As it turns out the inclusion of state-specific trends substantially reinforces the SBR coefficient, indicating that such mechanisms just described have been operating in Indian states in recent decades.

(*b*) *Econometric methodology*

Eqn. (1) is in a dynamic panel data specification. As is well known, the presence of the lagged dependent variable in Eqn. (1) leads to inconsistent estimates due to the endogeneity of the latter term. A natural solution for the first-order dynamic panel data models is to use General Method of Moments (GMM) (see Arellano & Bond, 1991 and Blundell & Bond, 1998). However this method is only efficient asymptotically and is suitable for samples with large N and small T. In our case, we have a small N (15 states) with a relatively large T (22 years). Therefore the GMM estimation may not be appropriate.[19] Instead we use the Least Squares Dummy Variable Corrected (LSDVC) estimator, a method originally proposed by Kiviet (1995) and Bun and Kiviet (2003), and extended by Bruno (2005) to unbalanced panels like the one used in this study. This method has been proposed precisely as a suitable dynamic panel data technique in the case of small samples, where GMM cannot be applied efficiently (see Meschi & Vivarelli, 2009 for an application). To illustrate the working of this method let us re-write our autoregressive panel data model in (1) in matrix form as follows:

$$Y = S\mu + \Gamma\delta + \varepsilon, \tag{2}$$

where Y is the vector of observation for state income *per capita*, S is the matrix of state-specific dummies, μ is the vector of state effects, Γ is the matrix of explanatory variables including also the lagged income *per capita* term and the SBR variable, δ is the vector of coefficients and ε is the vector of the error terms. The standard least square dummy variable (LSDV) estimator associated with (2) is the following:

$$\delta^{\mathrm{LSDV}} = (\Gamma' A \Gamma)^{-1} \Gamma A' Y, \tag{3}$$

where A is the standard within group transformation which purges (2) of the individual effects.

This estimator is biased due to the presence of the lagged dependent variable and Bun and Kiviet (2003) show that the most accurate approximation of this LSDV bias is:

$$B_3 = c_1(T^{-1}) + c_2(N^{-1}T^{-1}) + c_3(N^{-1}T^{-2}), \tag{4}$$

where c_1, c_2 and c_3 are parameters estimated by Bun and Kiviet (2003) via Monte Carlo simulations. We use this correction for the LSDV bias, thus employing the following LSDVC estimator:

$$\delta^{\mathrm{LSDVC}} = \delta^{\mathrm{LSDV}} - B_3. \tag{5}$$

We use the Arellano–Bond estimator to initialize the procedure to compute the estimator in (5) since the bias approximation depends on the unknown population parameters.[20] We use bootstrapped standard errors (with 100 iterations) rather than the asymptotic standard errors for the coefficients estimated through LSDVC, as the latter may generate unreliable t-statistics in small samples.

The LSDVC estimation is valid only in the presence of exogenous regressors. To the extent that the SBR measure may be endogenous to economic activity, the SBR coefficients would be biased and the LSDVC method would be invalid. There may be two types of endogeneity here: one driven by an omitted variable, and one driven by reverse causality. The former could occur for instance if a successful private sector drove both sustained economic growth and pro-business reforms (captured by an increasing SBR measure). In that instance part of the eventual correlation between SBR and growth would be driven by the omitted private sector variable. Similarly, an increased rate of economic growth may provide more space for the government to enact business-friendly reforms in an attempt to facilitate the future growth process. On the other hand, the same situation may act as an incentive to obtain concessions from businesses in favour of workers as the former are already gaining from increased growth. We do not speculate here around which situation may be more likely in the Indian context. However we do acknowledge that this may be a potential issue. This potential endogeneity calls for an instrumentation strategy for our main SBR variable.

In order to control for the potential endogeneity of the SBR variable, we proceed in two stages. We first regress the SBR variables on a set of instruments which are supposed to be exogenous in specification (1) affecting *per capita* GDP growth via the SBR measure only. This is run through the following specification:

$$\mathrm{SBR}_{it} = b_0 + AK_{it} + BX_{ikt} + v_t + u_i + \varphi_i + \varepsilon_{it}, \tag{6}$$

where K is the matrix of instruments. Taking the fitted value $\hat{\mathrm{SBR}}_{it}$ from (6), we can plug it into specification (1) estimated it via the LSDVC method:

$$Y_{it} = \alpha + \beta_0^{\mathrm{LSDVC}} Y_{it-1} + \sum_k \beta_k^{\mathrm{LSDVC}} X_{ikt} + \rho^{\mathrm{LSDVC}} \hat{\mathrm{SBR}}_{it} + v'_t + u'_i + \varphi'_i + e'_{it}. \tag{7}$$

We propose two types of instruments to estimate Eqn. (6) drawing from India's political history: one based on the nature of the political regime in a given state, and the other based on land reform legislation enacted by Indian states in different points in time.

The first type of instrument is based on 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 update their data to the most recent elections. The parties contained in the relevant groups are given in parentheses after the name of the grouping. These are (i) Congress Party (Indian National Congress + Indian Congress Socialist + Indian National Congress Urs + Indian National Congress Organization), (ii) a *hard left* grouping (Communist Party of India + Communist Party of India Marxist), (iii) a *soft left* grouping (Socialist Party + Praja Socialist Party) and (iv) Hindu parties (Bhartiya Janata Party + Bhartiya Jana Sangh). We express these as a share of total seats in the legislature (the excluded groups are independents and regional parties). We lag these variables 1 year to decrease the potential concern about their endogeneity.[21]

The second type of instrument is based on the Indian land reform, which was implemented under the 1949 Constitution, according to which states are granted the powers to enact (and implement) land reforms. Each state parliament implemented the reform through autonomous acts. There are significant differences in the intensity with which states have enacted the various types of land reform legislation over time. Such differences have been captured by Besley and Burgess (2000) who construct panel data type land reform variables, by cumulating land reform acts during 1957–92 in the major Indian states. They classify land reform legislation into four types of legislation: tenancy reform, abolition of intermediaries, land ceiling legislation, land consolidation legislation. 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 variables for the post-1992 period. We are able to use (separately) only the tenancy reform and the land ceiling legislation cumulative variables as instruments, while the other two land reform variables do not exhibit any variation over time in the period considered.

Land reform legislation was intensely political in India. 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. The reverse argument should apply as well. Our hypothesis is that this inverse relationship between land reform legislation and SBR effectiveness would apply particularly to the land ceiling legislation, but not necessarily to the tenancy reform. The latter included attempts to regulate tenancy contracts via registration and stipulation of contractual terms, as well as to abolish tenancy and transfer ownership to tenants. The drive of this type of reform appears to be related more to the desire of making agricultural markets work more efficiently, than to an ideological stance, as it has been the case in the land ceiling legislation, which concerned efforts to implement ceilings on landholdings, with a view to redistributing surplus land to the landless. This ideological view is confirmed by the evidence that the hard left parties were

particularly concerned only with the passage of the land ceiling legislation (Besley & Burgess, 2000). Therefore we would expect the intensity of the land ceiling legislation to be inversely related to the quality of SBRs, while the tenancy reform would have a more ambiguous relationship with overall SBRs. The data confirms that this is generally the case with a couple of caveats that we examine below.

Importantly for our purposes, Besley and Burgess (2000) show that neither of these land reform variables had any significant effect on the rate of growth of the state economy as a whole. This represents the necessary exclusion restriction condition for using land reform legislations as valid instruments for SBR. Part of the reason for this lack of growth effect could be related to the sluggish implementation of both tenancy reform and land ceiling legislation, especially due to the fact that state legislatures were often influenced by the landlord class (Besley & Burgess, 2000). This is despite the considerable publicity attached to enactment of these legislations, which constitutes an "appealing" feature of these reforms for our purposes. In fact while the passing of the land reform acts signals a certain political stance of the state governments, which could be indirectly related to their SBR stance, their sluggish implementation helps ensure that their growth effects were negligible. [22] As the period of analysis here is slightly different to Besley and Burgess (2000), we also check below that the effects of these legislations on growth are insignificant in our sample as well.

(*c*) *Data*

The data on state domestic product (net state domestic product in constant 1980 prices) is obtained from the EOPP database at the London School of Economics Economic and from the Reserve Bank of India's online Database on the Indian Economy. [23] The demographic data is from the decennial Census of India and have been interpolated to obtain annual data. *Per capita* state education expenditures are obtained from the EOPP database, and updated after 1992 through the Reserve Bank of India Bulletins. [24] The data on the cost of power supply (in Paise per Kilowatt Hours) is from the Planning Commission (2002). The rainfall data (average monthly rainfall in millimetres) is from the EOPP data-base and updated from the Compendium of Environment Statistics 2002 published by the Central Statistical Organisation, Government of India.

Table 1 presents the summary statistics of the data used in the regressions. The aggregate SBR measure has a mean of 0.48, with a standard deviation of 0.09 for the full sample. Among the four components of SBR, SBR Collusive has the highest standard deviation (0.25) and the largest maximum value (0.91).

5. RESULTS

We begin by addressing the possible endogeneity of the SBR variable, and of its components, so as to be able to properly apply the LSDVC method. We perform the first stage estimation by running Eqn. (6) in order to purge the endogenous component of the SBR variables. This regression includes all the control variables in (1) plus the excluded instruments. Table 2 presents the results (reporting only the coefficients of the excluded instruments). In line with our priors, Congress parties are associated with increasing SBRs, confirming that Congress has been a convinced pro-market reformer, at least since mid-1980s. On the other hand the other parties, soft left, hard left and Hindu parties do not exert any significant impact on SBRs relative to the other excluded parties (column 1). The land reform variables (lagged 2 years) are also broadly in line with the expectations although they are not statistically significant at conventional levels. [25] Land ceiling legislation appears to be negatively associated with the SBR variable (although it is significant only at the 15% level), while the land tenancy reform legislation is highly insignificant confirming its lack of any anti-business bias. The *F*-test strongly rejects the hypothesis that the instruments are jointly not significantly different from zero, and the partial R-squared suggests that a non negligible portion of SBRs is explained by the excluded instruments, reinforcing the belief that these variables are good predictors of SBRs.

Table 1. *Descriptive statistics*

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
SBR	362	0.48	0.09	0.30	0.74
SBR collusive	544	0.42	0.25	0.00	0.91
SBR practice	438	0.57	0.12	0.00	0.85
SBR public	379	0.43	0.08	0.18	0.80
SBR private	544	0.32	0.17	0.00	0.85
Log of state domestic product	513	7.62	0.46	6.64	8.78
Congress share of seats	569	0.40	0.26	0.00	0.93
Hard left share of seats	569	0.08	0.16	0.00	0.67
Soft left share of seats	569	0.13	0.20	0.00	0.84
Hindu share of seats	569	0.11	0.17	0.00	0.75
Per capita state expenditure on education (log)	465	11.84	1.12	9.50	14.08
Cumulative land tenancy reform legislation	585	2.23	2.12	0	9
Cumulative land ceiling legislation	585	0.57	0.83	0	3
Total population (log)	515	10.67	0.62	9.05	12.13
Rural population (log)	515	10.34	0.61	8.76	11.88
Cost of power (log)	419	4.50	0.89	2.62	6.38
Female to male ratio	515	0.94	0.06	0.63	1.19
Monthly rainfall (log)	459	5.42	0.64	3.65	7.37

Notes: SBR is the aggregate SBR measure; while SBR collusive, practice, public and private are the four components of SBR; CLR is cumulative land reform acts for each state; congress, soft left, hard left and hindu are shares of total seats in state legislatures for Congress Party (Indian National Congress + Indian Congress Socialist + Indian National Congress Urs + Indian National Congress Organization, Communist Party of India + Communist Party of India Marxist, Socialist Party + Praja Socialist Party, and Bhartiya Janata Party + Bhartiya Jana Sangh, respectively.

Table 2. *First stage regressions for SBR variables*

Method Dep. variable	(1) FE SBR	(2) LSDVC Per Cap. Y	(3) FE SBR_apex	(4) FE SBR private	(5) FE SBR public	(6) FE SBR practice	(7) FE SBR collusive
Congress (−1)	0.044**	−0.013	0.048**	0.086*	0.048*	0.056	−0.015
	(0.020)	(0.043)	(0.022)	(0.046)	(0.024)	(0.046)	(0.053)
Hard left (−1)	0.031	−0.057	0.057	0.287	0.067	−0.281	0.052
	(0.070)	(0.152)	(0.094)	(0.194)	(0.088)	(0.291)	(0.179)
Soft left (−1)	0.012	−0.014	−0.006	0.014	0.031	0.034	−0.033
	(0.035)	(0.054)	(0.042)	(0.051)	(0.028)	(0.065)	(0.091)
Hindu (−1)	0.021	−0.001	0.042	−0.004	0.036	0.067	−0.015
	(0.039)	(0.082)	(0.052)	(0.090)	(0.045)	(0.081)	(0.088)
Land ten. reform (−2)	−0.007	−0.055	−0.022	−0.059	0.059	0.039	−0.067
	(0.038)	(0.093)	(0.054)	(0.069)	(0.034)	(0.043)	(0.071)
Land ceiling reform (−2)	−0.067	−0.179	−0.068	0.029	−0.007	−0.331***	0.042
	(0.042)	(0.115)	(0.054)	(0.069)	(0.031)	(0.050)	(0.098)
SBR		−0.075					
		(0.121)					
Other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	310	294	310	310	310	310	310
Nr. of states	15	15	15	15	15	15	15
F-stat.	10.37		12.18	3.70	6.25	20.62	0.89
Partial *R*-sq.	0.124		0.102	0.076	0.042	0.345	0.003
R-sq. (within)	0.809		0.717	0.798	0.540	0.592	0.873

Notes: Robust standard errors in parentheses. All regressions include year and state effects and state specific time trends. Land ten. reform is the cumulative land tenancy reform acts for the 15 major Indian states obtained from Besley and Burgess (2000). Besley and Burgess provide data till 1992; we assume that no land reform legislation has occurred since 1992 for the 15 states (see text for justification). Congress, soft left, hard left and Hindu are shares of total seats in state legislatures for Congress Party (Indian National Congress + Indian Congress Socialist + Indian National Congress Urs + Indian National Congress Organization, Communist Party of India + Communist Party of India Marxist, Socialist Party + Praja Socialist Party, and Bhartiya Janata Party + Bhartiya Jana Sangh, respectively. The data is obtained from Besley and Burgess (2000) and updated to the most recent elections. Other controls include the GDP *per capita*, population controls (ln of urban and rural population and female–male ratio), controls or the split of Bihar, Madhya Pradesh and Uttar Pradesh in November 2000. *F*-stat. is the statistics for the *F*-test of the hypothesis that all instruments are jointly not significantly different from zero. Partial *R*-squared is the proportion of *R*-squared explained by the excluded instruments.

* $p < 0.1$.

** $p < 0.05$.

*** $p < 0.01$.

In column (2) we perform the second stage regression using the LSDVC method (and the endogenous SBR variable) and *per capita* GDP as the dependent variable to check whether the instruments are correctly excluded. None of the instruments has a statistically significant effect on *per capita* GDP, thus confirming the validity of the exclusion restriction. Note that the endogenous SBR variable has an insignificant effect on GDP *per capita.* We also test the robustness of the results to using a SBR index calculated without using data for the two major sectoral associations but only for the main business association in each state (the apex body). The results are little affected with the value of the *F*-statistic for the excluded instruments still above 10 (column 3).

In columns (4)–(7) we perform the same analysis using the four components of the SBR index as dependent variables, that is, *SBR private*, *SBR public*, *SBR practice* and *SBR collusive*, respectively. For comparability purposes we keep the sample as in the first columns. The fitted values from these regressions will be used to disentangle the effects of the different components of SBRs on growth. The most relevant determinant of SBR private appears to be again Congress parties (with an expected positive and significant impact), suggesting that the private sector seems to step up its activities in response to a supposed sympathetic government, possibly to reap as much benefits as possible from a favourable political environment (column 4). Interestingly the land reform variables are highly insignificant in the case of *SBR private*, suggesting that this reform process has not influenced the behaviour of the private (industrial) sector in any substantial way. The SBR public component is also positively affected by Congress parties, confirming the pro-business stance of their governments. On the other hand land tenancy reform exerts a positive (although but only mildly significant) impact on *SBR public*, while land ceiling legislation has no discernible effect (column 5). These results suggest that, as we hypothesised, tenancy reform signals somewhat of a pro-market activism on the side of the government, which may explain why it is associated with higher involvement of the state *vis-à-vis* the private sector. On the other hand we find (with results available upon request) that the insignificant result for land ceiling legislation is driven by its negative effect on *productive corporations* and by the positive impact on *industry share in economic services expenditures*, which are two of the three variables comprising *SBR public*. In our view these results confirm the relative anti-business stance signalled by an intense land ceiling legislation activity. Those governments heavily committed to this type of legislation tended to disregard the pro-business involvement typical of the establishment of state corporations to facilitate the development of the private sector. On the other hand their expenditures on economic services had a relatively large component of industry spending signalling a desire to directly drive the industrialisation process. In contrast, the impact of land ceiling legislation on SBR practice is negative and highly significant and is the most powerful instrument for this variable. State governments which brought in land ceiling legislation tended to be less supportive of synergistic SBRs, possibly

Table 3. *SBR and growth across Indian states, 1985–2006*

Method	(1) LSDVC	(2) LSDVC	(3) LSDVC	(4) LSDVC	(5) LSDVC	(6) LSDVC	(7) LSDVC	(8) LSDVC
$Y(-1)$	0.705***	0.662***	0.645***	0.681***	0.637***	0.708***	0.718***	0.576***
	(0.048)	(0.092)	(0.101)	(0.046)	(0.092)	(0.045)	(0.081)	(0.056)
SBR (fitted)	1.811***	1.617***	1.795***			3.196***	3.050***	1.380**
	(0.429)	(0.543)	(0.535)			(0.536)	(0.622)	(0.665)
SBR_apex (fitted)				1.487***	1.267***			
				(0.342)	(0.433)			
Female/male ratio	0.755	0.246	0.592	0.024	−0.361	0.951	0.395	0.322
	(0.660)	(0.904)	(0.829)	(0.694)	(0.769)	(0.605)	(0.828)	(0.528)
Tot pop (ln)	−0.819	0.084	−0.446	0.306	1.000	−0.931	0.041	−0.420
	(1.219)	(1.345)	(1.286)	(1.252)	(1.179)	(1.121)	(1.224)	(1.381)
Rural pop (ln)	0.756	0.763	0.530	−0.728	−0.561	1.447**	1.507	0.700
	(0.716)	(1.257)	(1.040)	(0.821)	(1.464)	(0.723)	(1.226)	(0.634)
Uttar Pradesh	0.060	0.063	0.047	0.049	0.043	0.136**	0.154	0.063
× Post-2000	(0.065)	(0.092)	(0.082)	(0.064)	(0.090)	(0.057)	(0.094)	(0.109)
Madhya	−0.167	0.220	−0.046	−0.130	0.218	−0.015	0.422	0.027
Pradesh	(0.537)	(0.707)	(0.539)	(0.527)	(0.702)	(0.513)	(0.627)	(0.502)
× Post-2000								
Bihar	0.241	0.362	0.169	−0.158	−0.014	0.558	0.713	0.151
× Post-2000	(0.432)	(0.615)	(0.455)	(0.433)	(0.685)	(0.433)	(0.566)	(0.524)
Rainfall (ln)		0.078***			0.078***		0.065***	
		(0.013)			(0.013)		(0.012)	
Log cost power supply (−1)		0.025			0.026		0.028	
		(0.040)			(0.041)		(0.041)	
Per cap revenue exp. on edu. (−4)		0.112			0.102		0.091	
		(0.103)			(0.104)		(0.103)	
Instruments	Election + CLR	Election + CLR	Election + CLR	Election + CLR	Election + CLR	CLR	CLR	Election + CLR
Region–year fixed effects	No	No	No	No	No	No	No	Yes
Observations	294	229	229	294	229	294	229	294
Number of state	15	15	15	15	15	15	15	15

Notes: Bootstrapped standard errors in parentheses (bias correction initialized by Arellano–Bond estimator). All regressions include year and state effects, as well as state specific time trends. The dependent variable is log *per capita* real State Domestic Product, and $Y(-1)$ is 1 year lagged log *per capita* real State Domestic Product. SBR variables are the fitted values from Table 2, using electoral results, land tenancy and land ceiling reform legislations as excluded instruments, except where differently indicated. Region–time fixed effects are a series of interactions between regional dummies and year effects (regional dummies are for based on a division of India into three regions: North-West, North-East and South, see main text for details).

*$p < 0.1$.

**$p < 0.05$.

***$p < 0.01$.

due to a hostile attitude towards the industrial sector and to private firms (column 6). Finally our instruments explain only little of the last component of SBR, that is, *SBR collusive* creating potential concerns for the estimation of its coefficient in the second stage (column 7).

We next use the fitted values derived from the estimation of Table 2 in the place of the SBR measures to estimate Eqn. (7) using the LSVDC method. The estimates are presented in Table 3. Year, state effects and state-specific time trends are common to all the regressions. In column (1), we regress log state-level GDP on its one period lag, and the SBR variable, with the basic demographic controls. In line with the expectations the SBR coefficient is positive and significant at the 1% level. The demographic controls and the controls for the split of the three states have all little significance. In column (2), we add the controls for human capital, infrastructure and climactic factors. The SBR coefficient is slightly smaller but still significant at 1% level when we include these extra controls. As shown in column (3) where we replicate the same regression as in column (1) but using the sample of column (2) the small reduction of the SBR coefficient is driven partly by the smaller sample for which the extra controls are available and mostly by the effect of the extra controls which decreases somewhat the SBR coefficient. The only significant control among the ones added in column (2) is rainfall, which has a positive impact on economic growth probably through its effect on agricultural production. The other controls have the expected sign but are insignificant. The coefficients of the SBR variable in the first two columns imply that on average a 1% increase in the SBR measure leads to between a 0.77% and a 0.86% increase in long-run growth.

In the following columns we present the results of a battery of robustness tests which address the main possible methodological concerns about the results. One possible issue has to do with the fact that the SBR index has been computed averaging data for the apex business association and for the two major sectoral associations as explained in Section 3.[26] However, it may be in fact that the only relevant private sector association as far as SBRs are concerned is the main apex body in each state, as that is often the official representative of businesses in state-level discussions. We test whether this concern is founded by using the fitted value of the SBR measure computed using only data for the Apex body but not for the sectoral associations (from Table 2, column 3). The SBR coefficient—reported in column (4)—is similar, albeit slightly smaller, to that of column (1). This is the case also when using

Table 4. *SBR sub-dimensions and growth across Indian states 1985–2006*

Method	(1) LSDVC	(2) LSDVC	(3) LSDVC	(4) LSDVC	(5) LSDVC	(6) LSDVC	(7) LSDVC
$Y(-1)$	0.643***	0.708***	0.599***	0.690***	0.592***	0.683***	0.641***
	(0.063)	(0.041)	(0.045)	(0.044)	(0.052)	(0.087)	(0.054)
SBR private (fitted)	0.427	0.087				0.168	
	(0.568)	(0.238)				(0.938)	
SBR public (fitted)	−1.808		−2.142***			−1.595	−0.942*
	(1.516)		(0.327)			(1.871)	(0.490)
SBR practice (fitted)	0.426***			0.656***		0.474*	0.536***
	(0.125)			(0.111)		(0.272)	(0.117)
SBR collusive (fitted)	−0.683				2.310***	−1.450	
	(2.295)				(0.859)	(2.249)	
SBR private apex (fitted)							0.126
							(0.690)
SBR collusive apex (fitted)							−0.042
							(0.344)
Basic controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Extra controls	No	No	No	No	No	Yes	No
Observations	294	294	294	294	294	229	294
Nr. of states	15	15	15	15	15	15	15

Notes: Bootstrapped standard errors in parentheses (bias correction initialized by Arellano–Bond estimator). All regressions include year, state effects and population controls (ln of urban and rural population and female–male ratio) and controls for the split of Bihar, Madhya Pradesh and Uttar Pradesh in November 2000 (i.e., basic controls). Extra controls include: log of real cost of power supply (lagged 1 year), log of *per capita* revenue expenditure on education, log of average monthly rainfall (mm). The dependent variable is log *per capita* real State domestic product, and $Y(-1)$ is 1 year lagged log *per capita* real state domestic product. SBR variables are the fitted values from Table 2.

*$p < 0.1$.
**$p < 0.05$.
***$p < 0.01$.

the set of extra controls (column 5). A further concern may be related to the fact that the SBR values are fitted using also variables based on previous electoral results. As discussed such results can be viewed as fairly exogenous shocks and have already been used by the literature as such (e.g., Besley & Burgess, 2000). However, due to persistence past economic growth rates, which probably influence electoral results, are likely to be correlated to future rates, thus generating a concern about the exclusion restriction of the electoral results' variables. To tackle such concern we use the fitted value of the SBR index computed without the electoral results' variables, that is, using only land reform legislation as the excluded instrument for SBR.[27] Again the results are qualitatively unaffected (column 6) also when adding the extra controls (column 7). However the size of the SBR coefficient increases two-fold. Such a large increase is possibly driven by the higher precision in the estimation of the fitted SBR variable using all the excluded instruments relative to the estimation using only land reform legislation. A final issue relates to the economic linkages between neighbouring states which mainly operate through trade and migration. To the extent that these linkages are intense enough economic growth at the state level may be partly driven by regional dynamics. We control for these possible effects by adding a series of region–year interaction to the baseline regressions. These are based on regional dummies constructed by dividing India into three macro-regions: North-West, North-East and South. We include Orissa, Bihar, West Bengal and Assam into North-East, Andhra Pradesh, Karnataka, Kerala and Tamil Nadu into South, and the other states into North-West. Despite being subjective we believe this division is arguably apt to capture eventual regional economic dynamics effectively.[28] Adding these region–year fixed effects (column 8) changes little the SBR coefficient, which remains highly significant with its magnitude decreasing only slightly relative to column (1).

In Table 4, we then investigate which dimensions are driving the positive impact of SBR on growth. In column (1), we present results with the SBR measure decomposed into its four components—*SBR private*, *SBR public*, *SBR practice* and *SBR collusive*, including only the basic controls. The coefficient of *SBR practice* is positive and it is the only dimension significantly different from zero. *SBR private* has the expected positive sign but it is insignificant, while *SBR public* is negative but not significant at standard levels. As expected *SBR collusive* is highly insignificant, which may be due to it imprecise first stage estimation.

Since *SBR practice* is the variable that most closely measures the pro-business attitude of the government, the strong positive effect that *SBR practice* has on state-level economic growth seems to confirm the conclusions reached by De Long (2003), Rodrik and Subramanian (2004) and Kohli (2006, 2007) that the attitudinal shift of the government towards the private sector was an important driving force behind the growth acceleration that occurred in India since the mid 1980s. The findings of these previous studies relate to the national level and to the change that occurred in attitudes of the Congress led central governments of Indira Gandhi and Rajiv Gandhi towards business in the 1980s. Our results confirm that such attitudinal shifts among governments in India at the sub-national level may also be an important determinant of state-level growth since the mid 1980s. We argue that these state-level shifts have not come about unilaterally but have been the product of effective interactions between the states and the businesses.

The negative coefficient of the *SBR public* variable suggests that the active involvement of the state in the economy, for example, *via* the establishment of state controlled productive corporations and the expenditures on economic and industrial services, has an adverse effect on growth. These results indicate that the key dimensions of SBRs that stimulate economic growth seem to be those related to the actual interactions

between states and businesses rather than those related to the formal organisations (both public and private) in place to favour such interactions.[29] In fact the excessive focus on the latter (especially when public) may be even counterproductive for economic growth.[30]

Given the potential overlap between some of the SBR components, in columns (2)–(5), we run the same regressions using only one component as a time. *SBR private* becomes highly insignificant when included on its own, suggesting that part of its positive effect on growth comes from complementarities with other SBR dimensions. On the other hand the negative coefficient of *SBR public* increases in absolute size and it becomes significant (column 3), suggesting that some of its detrimental impact on growth was absorbed by other SBR dimensions. Similarly the SBR practice coefficient increases in magnitude and becomes even more significant (column 4), while the *SBR collusive* coefficient becomes positive and highly significant (column 5). The latter result suggests that its entire positive impact is taken up by the other SBR dimensions, especially *SBR practice*, as confirmed by including these two variables in the regression (not shown here). One possible interpretation is that both dimensions are capturing a similar synergistic relation between the state and the private sector. However as we stated above the possibility that weak instrumentation for *SBR collusive* hinders its explanatory power cannot be ruled out.

The results of column (1) are robust to the addition of the extra set of controls including human capital, infrastructure and rainfall controls (column 6). When we use the fitted values of the individual SBR dimensions computed only with the Apex body data (column 7), the absolute value of the coefficient of *SBR practice* increases (and remains highly significant) while that of *SBR public* decreases but becomes significant. These results reinforce the possible dichotomy identified above between the (growth enhancing) effects of the actual interactions between states and businesses and the (growth reducing) effects of the formal public organisations in place to favour such interactions.

The results in Table 3 and 4 could also be consistent with an altogether different interpretation from what we have asserted so far, that is what matters for economic growth is not so much the dialogue between business and government, but rather simple pro-business policies like low taxes and regulation, which drive the *SBR practice* sub-dimension. Although this reading of the results cannot be ruled out, we argue that this is less convincing than our interpretation for at least three reasons. First, as argued above *SBR practice* is in our view capturing the outcome of interactions between the state and the business over specific state level policies (labour laws and taxes) which are of great interest to the private sector. The effectiveness of these specific interactions is likely to proxy for the general effectiveness of the practice of SBRs. Second, and consistent with the first point, *SBR practice* is thus capturing something else than the general pro-business policies which other indicators such as the investment climate indicators are explicitly measuring. This is evident when comparing the Investment Climate Index computed by the World Bank for Indian states in 2005 (Iarossi, 2009) with our *SBR practice* measure. The two indices (comparable across 12 states) are only mildly positively correlated (correlation index: 0.09) with a non-statistically significant Spearman correlation (results available upon request). Third, *SBR practice* is not just proxying for general pro-business shifts in the attitude of the government. The most important of these attitudinal shifts during the period we consider is that of the ruling Congress party in 1980 mentioned above. As shown in Table 2 (column 6) the pro-business attitude of the Congress party has only a mild influence on state-level *SBR practice* (while it has a more significant influence on *SBR public*, which is a dimension more apt to capture unilateral attitudinal shifts in the pro-business stance of the government). This is also confirmed by the fact that results do not change when excluding the Congress party variable altogether among the explanatory factors of *SBR practice* (results available upon request).[31] Therefore the determinants of *SBR practice* need to be identified elsewhere than in political parties' unilateral shifts, but rather in the more or less effective interactions between government and business.

We use the baseline range of values of the SBR coefficient from Table 3, that is, the specifications in columns (1) and (2) to simulate the impact of an improvement in SBRs on economic growth. Other things being equal, if Bihar (one of the worst performing states in India) had the same average (fitted) value of the SBR index over 1985–2006 as Gujarat, its growth rate would have increased by between 19% and 21% relative to its growth trend over the same period. The increase in the growth rate for Bihar would have been even more pronounced (between 37% and 42% higher) had it had the same average value of Haryana, the state with the highest average fitted value of the SBR index. These are only empirical simulations which are unlikely to apply to the real world (inter alia as the condition "other things being equal" does not work in reality), but they provide some evidence of the potential importance of effective SBRs in stimulating economic growth.

Although these results are quite clear and seem to be plausible to us, they need to be interpreted with a particular note of caution, especially as far as the individual SBR dimensions are concerned. In fact they rely on a measurement of the SBR dimensions which is based on the decision of what variables to include in each dimension. Although CMP have made substantial efforts to characterise such dimensions through the most appropriate variables, this choice is still inherently subjective, and to some extent it has been driven by the possibility to access the data. In this sense it is disputable for instance whether the way in which the organisation of the public sector *vis-à-vis* the private sector is properly captured by our composite *SBR public* index. Although to our knowledge this is the most comprehensive characterisation of SBRs available in the literature, we believe that further research, especially on the sub-dimensions, is needed to improve on the characterisation of this important economic institution.

7. CONCLUSIONS

In this paper, we address an over-looked aspect of institutional quality in the empirics of economic growth—the effectiveness of the relationship between the state and the business sector—which we argue can play a decisive role in economic growth, independent of other factors that have been found to be important in explaining economic growth. We propose a measure that can capture the degree of effectiveness of state business relations (SBRs) and using the measure, we estimate standard growth regressions for fifteen Indian states in dynamic panel form. Our results show that effective SBRs contribute significantly to economic growth across states in India. Our results also suggest that the key dimension of SBRs that stimulates economic growth seems to be that related to the actual operations of the interactions between states and businesses. On the other hand, the formal organisations (both public and private) in place to favour such interactions seem not to facilitate the growth process, and in the case of the public sector organisations seem to be even counterproductive for economic growth.

The findings of this paper support the conclusions of previous studies that subnational states in India followed very different strategies with respect to the private sector, with differing outcomes with respect to economic growth. Sinha (2003) argues that the state in Gujarat followed a proactive policy with respect to the provision of information to the private sector in contrast to the passive policies of West Bengal and Tamil Nadu, that these actions ensured "higher investment flows as well as a higher implementation of investment intentions" (p. 472) for the state of Gujarat relative to the states of West Bengal and Tamil Nadu. In addition, the economic reforms introduced incrementally by the central government in the mid 1980s and then more comprehensively in 1991, provided an institutional environment for peak business associations in India to engage in stronger collective action on behalf of the private sector and to pursue many developmentally oriented activities at both the national and subnational levels. Prior to 1991, peak associations representing business "did not enjoy a high status and there was an absence of mutual cooperation, trust and respect between business and government" (Kochanek 1996, p. 158). With the change in the attitude of the state towards the private sector in the 1980s, there was an active encouragement of the state towards peak business associations such as Federation of Indian Chambers of Commerce and Industry (FICCI) and the Confederation of Indian Industries (CII) to transform themselves into *developmental* business associations (Sinha, 2005a). These business associations along with a responsive state that was credibly committing itself to private sector development were catalysts for synergistic SBRs to emerge both at the national and subnational levels since the mid 1980s, which replaced the rent-seeking and collusive relationships that had characterised SBRs in India since the 1970s (Kochanek, 1995). As our paper shows, where such synergistic SBRs emerged in Indian states, economic growth followed. An important policy implication of our findings is that the national state and peak business associations should support and broker more collaborative relations between sub-national states and the private sector where such synergistic SBRs have not emerged to the same degree. Our results indicate that the focus of this support for SBRs should be provided by strengthening the actual practice of SBRs rather than by establishing formal organisations to carry out such interactions.

While these findings are rooted in the Indian experience, they are in line with those of Sen and te Velde (2009) for a sample of sub-Saharan African countries. The fact that our results are based on institutional differences across states at different levels of development within the same country, on a particularly elaborate measure of SBRs, and on empirical methods that address the main concerns of growth regressions should reinforce the possibility that these findings may well apply to other developing contexts as well. In this sense, the claim that good relations between business and government elites are not only possible but are often an important component of a country's growth path is one that should be taken more seriously by the literature in search for the determinants of economic growth.

NOTES

1. By effective state business relations, we mean a set of highly institutionalised, responsive and public interactions between the state and the business elite.

2. An exception is Sen and Te Velde (2009) who measure the effectiveness of state–business relations for 19 African countries over 1970–2006 and show this measure can explain economic growth, independent of other measures of institutional quality.

3. The growth of *per capita* income in India accelerated from 1.7% per annum in 1960–85 to 4.3% per annum in 1985–2006.

4. It should also be noted that by using Indian states as units of analysis and by using a time-varying measure of institutional quality so that we can use panel data econometric methods in our empirical analysis, we are able to address some of the problems that have occurred in the cross-country literature on economic growth. By examining within-country variations in growth, we are less subject than cross-country analyses to the criticism of not adequately addressing the innate cultural attributes and historical factors that may influence growth in a time-varying country-specific way (Kenny and Williams, 2001). We are also able to control for the effects of meta-institutions that operate at the national level such as the rule of law, the presence of democratic institutions and the origin of the legal system.

5. The primary data is obtained from structured and semi-structured interviews with business associations in each state and state government officials from the industry department of almost every state. CMP also collected data from secondary sources whenever they were available. Given the constraints of measuring the effectiveness of SBRs in a subnational context and for a long time period, CMP needed to strike a difficult balance between the representativeness of the variables in capturing the essence of SBRs and their availability. However, they go a long way in gathering data for variables that are as close as possible to the ideal notion of effective SBRs that is present in the previous literature (e.g., Evans, 1995; Harriss, 2006; Maxfield & Schneider, 1997).

6. In our empirical analysis, we use the SBR measure for 1985–2006 due to the non-availability of the state domestic product data prior to 1985. We also confine our analysis to the fifteen major Indian states and omit Uttarakhand, which is in the CMP sample, in the regression analysis as there are no available data for many of the key explanatory variables.

7. This variable takes a value of zero in any year in which the organisation does not have a website and 1 otherwise.

8. This variable is coded as the number of times the website is updated in a month, thus a monthly update has the value of 1, a weekly update has the value of 4.5, a daily update is equal to 30, an annual update is equal to 1/12, etc.

9. We investigated further whether and to what extent the frequency of website updates used in the CMP measure is a good proxy for the level of activity of business associations. An important indicator of the level of activity of a business association is the number of google occurrences (total or unique) of the association's name (normalised by the state's population, as business associations in a larger state would tend to have more of an internet presence, regardless of level of activity)—the more active the association is, the more likely it will be present in websites (of the media, business sites, etc.). This measure is obviously available for a point in time and not over time. We obtain google occurrences of the peak business associations in our sample of states, and compute the correlation of both total and unique google occurrences of the association's name with the frequency of updating of the association's website. We find a strong correlation between total and unique google hits and the frequency of

website updates (correlation coefficients of 0.64 and 0.60, respectively). This suggests that the frequency of website updates is a good indicator of the overall level of activities of the business association.

10. CMP code this variable as 1 when the association owns its office premises (and the year when it occurred), 0 otherwise.

11. This is corroborated by CMP fieldwork results which indicate that only industry departments engage with the business sector in a "significant" manner, identifying its needs and facilitating its operations.

12. CMP update this index to 2006.

13. There are a number of other potential labour market indicators that are likely to represent the quality/intensity of interaction between state governments and businesses. These include the number of inspected factories as a proportion of total registered factories, convictions as a percentage of number of factories inspected, the proportion of industrial disputes resulting in adjudication awards in favour of workers and the officially announced minimum wage. However, as CMP note, the coverage of such variables is patchy and their inclusion in the computation of SBR indices significantly reduces the number of observations. For this reason, they focus only on labour regulation as a proxy for state–business interactions.

14. There is sizable evidence on the media on the lobbying efforts by national, state and sectoral business associations to influence state governments to reduce stamp duty (see e.g., Business Line, 2000; Dave, 2010; Gera, 2003; Singh, 2010; The Economic Times, 2009).

15. This variable is coded analogously to the frequency of website update.

16. To obtain the SBR Private component, the apex business association is given a weight of 0.5 and the two sectoral associations are given weights of 0.25 each. CMP experiment with different weights for apex and sectoral business associations and find that there is a strong correlation between SBR measures obtained under different weighting schemes. We adopt these weights for the main regressions but our results are also robust to the use of SBR indices calculated through different weights (i.e., assigning the same weight of one third to each, or assigning all the weight to the apex body).

17. We use *per capita* education and health expenditures rather than the share of these expenditures on GDP as the latter could be regarded as endogenous to economic growth.

18. We lag this variable by one year to take into account that current costs of electricity may be endogenous to growth—as demand for power rises with growth, and with sticky energy supply response, costs of power supply may rise. Also, by using the real cost of power supply as a measure of infrastructural development rather than *per capita* electrification as is conventionally used in growth empirics on India, we are less susceptible to the argument that infrastructural development is endogenous to economic growth—fast growing states would able to afford higher levels on investment in infrastructure.

19. In fact applying GMM estimation to our panel yields more instruments than observations.

20. The other two possible options for initialising the procedure are the Anderson–Hsiao, and the Blundell–Bond estimators. However the Arellano–Bond estimator is considered as the best established panel data estimator implemented in the STATA econometric package (Meschi and Vivarelli, 2009), which we use here.

21. However, our results are robust to longer lags as we will see below (i.e., up to 6 years).

22. By using land reform legislation and not the actual implementation of land reforms as a proxy of the anti-business attitude of state governments in India, we avoid the possibility that land reform implementation may be correlated with growth and therefore, cannot be a valid instrument. Deininger, Jin, and Nagarajan (2009) show that land reform implementation in India has had a positive effect on household incomes and accumulation of physical and human capital, though their effect on economic growth is unclear.

23. The original source of the state domestic product data is Ozler, Datt and Ravallion (1996). The EOPP data-base is available at: www.sticerd.lse.ac.uk/eopp/research/indian.asp.

24. The original source is the Public Finance Statistics published by the Ministry of Finance, Government of India. Education expenditures is the budget line—expenditures on education, sports, art and culture—and health expenditures is total expenditures on medical and public health.

25. Note that the results of land reform are not qualitatively affected by using slightly shorter or longer lags (i.e., 1 or 3 years).

26. In particular the weighting scheme affects the computation of the *SBR private* and *SBR collusive* sub-dimensions.

27. We also check the robustness of the results to using the fitted value of SBR obtained using the electoral variables lagged up to 6 years as instruments. The results, available upon request, are again unaffected.

28. Importantly, the results are not much affected by relatively small changes to this division (e.g., including Bihar and Madhya Pradesh into North-East, or creating a further central region).

29. The finding that the public dimension of the SBR measure has had a negative effect on economic growth in Indian states finds some support in the reasons offered by Evans (1995) on why the India was not able to achieve the industrial transformation achieved by Korea and Taiwan. As Evans argues, "the economic bureaucracy in India lacked the corporate coherence of the developmental state ideal and the absence of well institutionalised and organisationally consistent career ladder for bureaucrats which bind them to corporate goals while simultaneously allowing them to acquire the expertise necessary to perform effectively" (1995, p. 70). Our findings also support Evans' key contention relating to state business relations that states may have similar profiles in the ways they promoted development, but their effects on economic performance would depend on the quality of their interactions with the business sector.

30. There is an extensive literature in the Indian context that documents the problems of over-staffing and weak management of state-level corporations and the crowding out effects of public expenditures on private investment, particularly those undertaken by state governments (Mundle and Rao, 1997). As Maxfield and Schneider (1997) argue, "even when cohesive, coherent state structures do exist, they need close and continuous connection to a broad set of private firms in order to make a real contribution to economic transformation" (p. 70). In the Indian case, corporations set up by various state governments were run as non-Weberian style bureaucracies and often degenerated into aggregations of rent-seeking individuals and groups.

31. As the period of pro-business reforms in India was mainly the 1980s (with a latest wave of delicensing in 1991), we have also tried to add an interaction term between each party's variable and a post-1991 dummy in the regression explaining SBR practice. Again the results were not meaningfully affected and the interaction term between Congress party and post-1991 dummy was not significant (results available upon request).

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