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State-Business Relations and Firm Performance in Zambia

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Abstract

This paper examines whether an effective state-business relationship (SBR) facilitated by an organized private sector improves firm performance in Zambia. Effective SBRs lead to a more optimal allocation of resources in the economy, including an increased effectiveness of government involvement in supporting private sector activities and removing obstacles. Being part of the governance and growth literature, effective SBRs may *lead to* and *prioritize* governance reforms. In-depth discussions of state-business relations for sub-Saharan African countries have been patchy or absent; a detailed analysis of its effect on firm performance largely lacking.

This paper exploits the enterprise survey data of the World Bank Group for Zambia for around 200 firms with data on performance, including data that facilitate the calculation of productivity levels, and on the institutional context facing or perceived by firms. The paper finds that being a member of a business association improves firm performance in Zambia in the form of productivity improvements in the range of 37 to 41 percent. This finding is robust to including other variables that are commonly used to describe the investment climate, and robust to using estimates of productivity that account for endogeneity problems. The results show that the effectiveness of business association works through lobbying government and to a lesser extent through solving of information related market and co-ordination failures. We also find that joining a business association is particularly useful for small and medium sized firms. Further, our results support the view that foreign owned firms lobby the government more effectively than their domestic counterparts.

Key Words: state-business relations, firm performance, Zambia

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Introduction

This paper examines whether an effective state-business relationship (SBR) facilitated by an organized private sector promotes the economic performance of firms. Effective SBRs lead to a more optimal allocation of resources in the economy, including an increased effectiveness of government involvement in supporting private sector activities and removing obstacles (te Velde, 2006). While being part of the good governance literature, effective SBRs may also *lead to* and *prioritize* governance reforms. In-depth discussions of state-business relations for sub-Saharan African countries have been patchy or absent; a detailed analysis of its effect on performance largely lacking.

There are several key factors associated with effective SBRs including an organized private sector vis-à-vis the public sector, an organized public sector vis-à-vis the private sector, an institutionalised mechanism of SBR, and absence of harmful collusive behaviour. This paper exploits the enterprise survey data of the World Bank Group for Zambia for around 200 firms with data on performance, including data that facilitates the calculation of productivity levels, and on the institutional context facing or perceived by firms.

The findings reveal that being a member of a business association improves firm performance in Zambia in the form or productivity improvements. This finding is robust to including other variables that are commonly used to describe characteristics internal and external to the firm. The results show that of the various services provided by a business association to its members, lobbying government and providing information on government regulations and domestic and international product/input markets are the most useful for Zambian firms and significantly enhance their productivity.

We also find that joining a business association is particularly useful for small and medium sized firms. The positive impact of membership for the small and medium firms suggests that these firms prefer to join business associations as they lack other means for effective lobbying. Further, the results show that lobbying by foreign owned firms has a significantly positive effect on their productivity. This supports the commonly held view that foreign firms, especially in developing countries, influence government behaviour in their favour due to their superior economic resources and political influence. These findings also stand in some contrast to the general discussion in Brautigam et al. (2002) which suggests that membership of business associations and its perceived effectiveness has declined in Zambia over the course of the 1990s.

The remainder of the paper is organized as follows. Section 2 discusses the theoretical background of the research and identifies the channels through which effective state-business relations have microeconomic impacts. Section 3 presents a brief overview of the related empirical literature. Section 4 develops the theoretical framework and estimation strategy adopted in this paper and discusses relevant data issues. Section 5 presents the results from econometric analysis. Section 6 summarises the main findings and concludes outlining the important policy implications of this research.

State-Business Relations and Economic Performance: Theoretical Background

2.1 Macroeconomic impacts

Effective state-business relations or public-private sector dialogue have been identified as an important determinant of economic growth at the macro-level (OECD, 2006; te Velde, 2006). This is because failures exist at both the market and state levels and joint action may raise collective efficiency. Market and co-ordination failures such as monopoly, interdependence of economic actors external to the market mechanism, public goods and common resources prevent the optimal allocation of resources and justify state intervention. There are several examples of market failures in private sector development, in the area of capital, skills, technological development and crucially in the coordination amongst them. For example, firms may under invest in general worker skills due to a lack of knowledge of best-practices in training and the full appropriability of benefits of investing in transferable worker skills (te Velde and Morrissey, 2005). Similarly, market failures may exist in technological development as uncertainty and externalities about the application of a new technology, while acquiring information, is costly to obtain and appropriate for individual firms.

Government and institutional failures may exist alongside market failures: this could be because governments often do not have the capacity to intervene and transform an economy or because they lack perfect information and perfect foresight which is needed to identify and overcome market failures. For example, technology institutions in developing countries are often de-linked from what the private sector actually wants. Government intervention can also suffer from moral hazard problems in that the private sector may not act once the government has provided an incentive (Hausman and Rodrik, 2002). Further, government intervention carries the risk of misallocation and rent-seeking behaviour, especially in countries with high levels of corruption.

Effective state-business relations provide a solution to state, market and co-ordination failures. Harriss (2006) suggests that good SBRs are based on benign collaboration between business and the state with positive mechanisms that enable *transparency*, that is, the accurate and reliable information flow between business and government; ensure the likelihood of *reciprocity* (as, for example, when state actors have the capacity and the autonomy to secure improved performance in return for subsidies);

increase *credibility* of the state among the capitalists; and establish high levels of *trust* between public and private agents. They provide a transparent way of sharing information, lead to a more appropriate allocation of resources, remove unnecessary obstacles to doing business, and provide checks and balances on government intervention.

Hisahiro (2005) argues that various forms of information and resources, which are dispersed among entities in the public and private sector, need to be integrated in a more sophisticated way to jointly coordinate policies and provide better public services. It is this combination of insulation and connectedness that minimises the risks and enhances the effectiveness of economic policies. Hence, appropriate government capacity and policy, which is necessary to support private sector development and promote economic growth, can be enabled by good state-business relations and productive public-private sector dialogue.

2.2 Microeconomic impacts

A well-organized and sustained state-business relationship which fulfils the criteria of transparency, reciprocity, credibility and trust can influence firm productivity in at least three important ways.

i) Efficient policies and institutions

The nature and scope of public policies have a direct impact on a firm's strategies, choices and output, through their effect on costs, risks and barriers to competition. Kerr (2000) argues that a quagmire of regulation imposes high costs on business and deters productive investment. These costs arise not only from compliance but also from resource-misallocation and a lack of competition, especially if the designed regulation is bad. Similarly, de Soto (2002) notes that costly firm regulations and weak property rights restrict firm activity as fewer firms opt to register.

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 (OECD, 2006). The private sector can identify constraints, opportunities and possible policy options for creating incentives, lowering investment risks, and reducing the cost of doing business. For example, they may raise concerns related to the tax regime, licensing requirements or difficulty in hiring skilled workers, which could contribute significantly to improving the national/local tax and licensing practices and to initiatives that encourage investing in human capital. Thus, more efficient institutions and rules and regulations can be achieved through policy advocacy which could reduce the costs and risks faced by a firm and significantly enhance its productivity.

It is sometimes argued that firm size plays an important role in the effectiveness of SBRs. Large firms have greater influence on the policy, regulatory and institutional environment in which they operate because of their improved, and in many cases informal, links with state agents. The efficacy of business associations for large firms is also debated, with some considering no business case for large firms to organize themselves as they could lobby government directly. Small and medium firms however are more likely to join business associations and use their assistance to reduce transaction costs and act collectively to affect policy decisions. Further, the ownership of firms may also play a role in shaping the business environment: foreign-owned firms are more likely to attempt to influence host government policies in their favour through political power and lobbying (Boddewyn, 1988; Hillman and Hitt, 1999).[1] The extent to which they are successful in shaping government policies depends on the degree of political influence enjoyed by them in the host country (Desbordes and Vauday, 2006).

ii) Improved quality and relevance of government expenditure

The competitive advantage of a firm and the competitive pressure that encourages a firm to take risks, innovate and improve its performance depend on the availability of public services as much as they depend on the private incentives facing the firm. These services include infrastructure, availability of physical and human capital, information and communication technology, the availability and cost of finance, and, legal and judicial services. Public services can affect firm productivity directly, for example, through skills development or through uninterrupted and reliable provision of basic facilities like water, electricity and gas, which is important for the smooth running of production facilities. They can also affect firm performance indirectly through, for example, stimulating the quality of basic demand, and facilitating business creation and development. The efficient delivery of public services requires the private sector to play a pro-active role and lobby the government for improving the quality of its spending and creating a better climate for investment

Effective state-business relations can also play an important role in stimulating and sustaining innovation. Innovation is one of the main forces behind firm dynamics and economic growth (Schumpeter, 1942). It has the power to destroy well-established companies and let new entrants carve a niche in the market through improved efficiency and quality, lower costs and the introduction of differentiated products. Some of the most successful regions or clusters of innovation, such as the Silicon Valley in the US, were

1. For example, studies show that the policy-contingent campaign contributions of foreign firms to the state influence trade policies (Hillman and Ursprung, 1993; Grether et al., 2001; Gawande et al., 2004).

outcomes of collaboration between the public and private sectors (Warner, 2006). The government may take the lead and encourage the private sector, research institutions and universities to invest in research and development by providing incentives, venture capital for new initiatives, and protection of property rights. These steps create conditions for innovation which affects the productivity of firms directly and may also affect firm performance by altering the competitive environment of the firm.

iii) Reduced policy uncertainty

Firms operate in an uncertain environment and frequently face risk and resource shortages. They undertake decisions concerning technology, inputs, and production facilities based on anticipated market conditions and profitability. Theoretical research has suggested a variety of channels through which uncertainty can affect investment: for example, uncertainty may increase the risk premium demanded for investing in certain projects, pushing the required rate of return upwards and dampening investment. The effect of uncertainty about the firm's own future prospects may be more important when managers influence investment decisions and cannot fully diversify their exposure to idiosyncratic risk (Bond and Cummins, 2004).[2] Uncertainty can have significant negative effects on investment, when investment involves large sunk and irreversible costs and there is the option to delay the decision to make the investment until further information becomes available (Dixit and Pindyck, 1994). Effective state-business relations and membership of business association may help to solve co-ordination failures.

Bond and Cummins (2004) use the data for publicly-traded US companies and find a negative effect of uncertainty on investment in the short and long runs. Bloom et al. (2006) argue that higher uncertainty makes firms more cautious when investing or disinvesting which lowers the responsiveness of investment to demand shocks. Ghosal (2003) shows that periods of greater uncertainty have a crucial effect on industry dynamics and result in a decrease in the number of small firms and establishments and a marginal increase in industrial concentration Greater liaison with the state and free flow of information on prospective policies and trends may reduce uncertainty surrounding the business environment and increase business confidence, enabling more accurate forecasting and quick decision making. These factors affect firm productivity and performance even if other factors are held constant.

Relevant Empirical Literature

Effective state-business relations are linked to the literature on good governance and institutions. The importance of these factors in promoting growth at the macro level has been well-established by a number of studies, for example, Kormendi and Meguire (1985), Knack and Keefer (1995), Mauro (1995) and Rodrik and Subramanian (2003). Hall and Jones (1999) observe that social infrastructure, defined as institutions and government policies that frame the economic environment within which individuals and firms operate to produce output, determines almost all of the differences observed in output per worker across countries. They argue that poor economic performance and lower rates of physical and human capital are an outcome rather than the cause of weak institutions.

Following this strand of research, a growing body of literature attempts to investigate the growth-institutions nexus at the micro level: for example, McArthur and Teal (2002) conduct a micro-level analysis to investigate the effect of corruption on firm performance in Africa. They find that companies that pay bribes have 20 percent lower levels of output per worker than firms that do not. They also show that firms in countries with endemic corruption are about 70 percent less efficient than their counterparts in countries where corruption is less prevalent. Beck et al. (2005) use a firm-level survey database covering 54 countries to investigate the effect of financial, legal, and corruption problems on firms' growth rates. Their results show that these factors constrain firm growth and that small firms are most adversely affected.

Dollar et al. (2003) use firm-level surveys compiled by the World Bank to investigate the relationship between investment climate, measured by days required for customs clearance, days to get a telephone line, sales lost to power outages, time spent dealing with government bureaucracy, and firm performance in a number of developing countries. Their empirical analysis reveals that the total factor productivity of firms in developing countries is systematically related to the investment climate indicators. Factor returns (wages and rate of profit) are also higher where investment climate is better. Similarly, Subramanian et al. (2005) focus on the impact of investment climate on firm performance in China and Brazil, finding significant adverse effects of a poor investment climate and poor institutions on total factor productivity. For example, their estimates show that a reduction of customs clearance by one day in China could increase total factor productivity of Chinese firms by 2–6 percent.

Scarpetta et al. (2002) analyse the effect of policy and institutional settings in product and labour markets on the productivity and dynamics of firms in the OECD economies and their results show significant adverse effects of stringent product market regulations and high hiring and firing costs on industrial productivity. They also observe that the entry of new small firms in the market is discouraged by strict regulations on entrepreneurial activity and high costs of adjusting the workforce.

2. Hartman (1972), however, argues that if expected profits are a convex function of future output prices, then higher uncertainty will have a positive effect on investment.

Some recent literature examines the impact of politics and institutions on corporate finance: for example, Rajan and Zingales (1999) argue that the decentralization of political power and an efficient legal system help to develop financial markets and vice versa. Roe (2000) compares continental Europe with the U.S. and finds that the political environment in the former promotes the persistence of large-block shareholding. He argues that this is because social democracies often urge managers to move away from profit-maximisation in favour of other goals, such as, employment stabilization; in such circumstances, large shareholding becomes a way to control the managerial agency costs. Du (2002) examines the effect of bureaucratic quality and style of economic management on the type of corporate finance. His results show that corruption and interventionist government policies affect the ownership of firms. On average, countries that have high quality government institutions have a higher proportion of widely held companies whereas bank based companies are more prevalent under corrupt and interventionist governments.

The above studies while focusing on policies, the business environment, and legal and institutional constraints do not explicitly take into account the effect of public-private sector relationships. Harriss (2006) argues that it is possible for a state to have the right policies in place, but if those policies are not implemented in a consistent and reliable way then they will not command credibility and confidence of private capital. Accordingly, businesses need to be assured that their activities will be supported by the state, and that the rent-seeking activities of the agents of state will be restrained. Kohli (2006) supports this assertion and shows that the crucial changes in India's economic development were a result of the shift in the ideas and attitudes of the Indian political leadership towards the private sector rather than the initiation of political reforms only.

te Velde (2006) suggests that an effective state-business relationship is an important underlying factor for economic growth. He constructs a composite SBR measure for twenty sub-Saharan countries over the period 1970–2005 and finds that higher SBR scores are correlated with faster economic growth and with more operational investment climate data, such as fewer procedures when trading goods and services. Mondova (2002) observes that the Bulgarian business environment has improved since 1997 partly because of improved public-private sector dialogue. In the current improved environment, the private sector has increased expectations from the state and the state seeks to engage the private sector more often, albeit under pressure from international institutions, to obtain comments and advices on legal changes.

A collection of case studies about state-business relations and public-private sector dialogue in developing and transition economies are presented on the publicprivatedialogue.org[3] website, which is an initiative supported by the DFID, World Bank, IFC and OECD Development Centre. These case studies highlight the challenges and opportunities accompanying state-business relations and enable practitioners around the world to learn how to make SBRs more effective and productive.

Nonetheless, none of the studies mentioned above focus on the impact of state-business relations on economic performance at the micro level. Most of the available micro level literature on firm performance uses broad definitions of institutional quality and investment climate, mainly looking at the impact of bribery, corruption and regulatory constraints, rather than on SBRs per se. Effective SBRs are in general linked to good institutions and a better investment climate, however, while being part of good governance and institutions, effective SBRs may also lead to and prioritize governance reforms and institutional settings. It is therefore important to isolate the effect of SBRs on firm performance and examine the extent to which they can explain the variation in performance across firms. This paper fills the gap in literature and uses firm level survey data to empirically examine the impact of state-business interaction on firm productivity.

Another key contribution of the paper is its innovative approach to measuring SBRs. Following te Velde (2006), we use different indicators that capture key factors associated with effective SBRs to assess the effects of different types of SBRs. These key factors are based on economic theory as explained in the previous section and include an organized private sector, an organised public sector, and an institutionalized mechanism of SBR. We obtain our indicators from the comprehensive Investment Climate database of the World Bank.

Further, much of the literature on state-business relations has been limited to Asian countries such as Korea, Japan, Malaysia, Bangladesh and Thailand.[4] The importance of state-business relations in the context of sub-Saharan Africa has largely been ignore, despite its potential importance for firm performance as outlined in Section 2. Hence, in this paper we take Zambia, a landlocked country in southern Africa, as a case study and use firm level data covering 207 firms for the year 2002 in our empirical analysis.

Zambia has undertaken a number of steps to strengthen its state-business relations after a decline in the perceived effectiveness of business association over the course of 1990s. These include, on the private side, the formation of The Zambian Business Forum (ZBF), a group of the 5 main national business associations, in 2002. The government of Zambia utilises the Zambia International Business Advisory Council (ZIBAC) to provide the president with impartial advice. The Private Sector Development Forum (PSDF) was formed out of private sector suspicion of closed door meetings between ZIBAC and the president. The PSDF facilitates discussion between the ZBF and the president as well as ZIBAC.[5]

3. http://www.publicprivatedialogue.org
4. See, for example, Hisahiro, K. (2005)
5. Source: www.publicprivatedialogue.org/papers/Reforming_the_Business_Enabling_Environment.pdf

Empirical Strategy

4.1 The model

The theoretical framework used in this paper is a synthesis of earlier research on industrial organization, corporate governance, corporate finance, and economic growth theory. To assess the link between SBRs and firm performance, we begin with a simple Cobb-Douglas production function which links output with inputs and the firm's productivity, as follows:

$$y_i = \alpha_o + \alpha_L L_i + \alpha_K K_i + \varepsilon_i \quad (1)$$

where yi is log of output measured in value added terms of firm i, and L and K are logs of labour and capital inputs, respectively. ε_i is the unobserved error term that represents the log of productivity shock or total factor productivity (*TFP*) of firm i and captures any effects in total output not caused by inputs or productivity.

To investigate the effect of a firm's relationship with the government on its economic performance we estimate *TFP* from (1) and estimate the effect of SBRs (*SBR*) and several other factors identified in earlier literature to explain a significant proportion of the variability in *TFP*. We categorize the factors into two groups: characteristics of the firm (F) and characteristics of the investment climate (X), and estimate:

$$\log(TFP_i) = \beta_o + \beta_s SBR_i + \sum_k \beta_{F_k} F_{ik} + \sum_j \beta_{x_j} X_{jk} + v_i \quad (2)$$

where v_i is a white noise error term, F includes firm characteristics such as the age, location, size and sector of the firm, and X comprises a number of investment climate indicators such as days to get a phone line, need to pay bribes and power losses.

4.2 Estimation

Most of the earlier research treats the productivity shock in (1) as orthogonal to the factor inputs. This assumption has been challenged since long and it is argued that the input variables L and K are in general correlated with the unobserved productivity shock, ε.[6] For example, a positive productivity shock may lead a firm to use more inputs than otherwise. If this assertion is true, then the parameter estimates for the production function obtained from the Ordinary Least Squares (OLS) method will be biased and will yield biased estimates of *TFP*.

A number of studies have put forward ways to address this endogeneity problem, including introducing fixed effects in the production function and using the two stage least squares-instrumental variables (2SLS-IV) technique. The fixed effect method makes a strong assumption that the part of *TFP* which influences firm's decisions is a time invariant firm-specific attribute, and suggests including dummy variables for individual firms into the regression to solve the problem. However, the assumption that the component of *TFP* that influences firm behaviour is fixed over time may not always be reasonable, which makes the estimation procedure invalid (Arnold, 2005). The 2SLS-IV technique requires using instruments that are correlated with the independent variables but not with the error term. In general, it is difficult to find strongly correlated instruments and using weakly correlated instruments is not advised since the estimates are biased in the same direction as OLS.

The first differenced Generalised Method of Moments (GMM) estimator, proposed by Arellano and Bond (1991), is another approach that could be used to consistently estimate the production function. This methodology uses lagged levels of the dependent variable and the endogenous variables and differences of the strictly exogenous variables as instruments to control endogeneity. However, Mairesse and Hall (1996) report that this approach yields insatisfactory results in the estimation of production functions from panel datasets covering a small number of time periods and a large number of firms. Blundell and Bond (1999) argue that the variables entering the production function, that is, capital, labour and output, are highly persistent in nature. This induces weak correlation between the first differences and the lagged levels of these variables and causes the problem of weak instruments that can cause large finite sample biases and poor precision in the estimators.[7]

6. Marschak and Andrews (1944) were the first to point towards the potential correlation between input levels and firm-specific productivity shocks in the production function.

7. Blundell and Bond (1999) suggest using the system Gmm estimator, first proposed by Arellano and Bover (1995). This estimator is based on an augmented system which includes level equations with lagged differences as instruments and differenced equations with lagged levels as instruments. They apply this estimator to US firm level data and find that it yields much more reasonable parameter estimates that first differenced GMM. However, we are unable to use it in our case because of small time dimension data of our data.

Olley and Pakes (1996) propose to overcome the simultaneity problem by using the firm's investment decision to proxy unobserved productivity shocks. They divide ε in (1) into two components, η which is a part of the productivity shock that influences a firm's decisions relating to factor inputs, and ξ which is an independent and identically distributed random component, and obtain:

$$y_i = \alpha_o + \alpha_L L_i + \alpha_K K_i + \eta_i + \xi_i \quad (3)$$

In (3) L is treated as freely variable whereas K is taken as a state variable. Next, investment is defined as a function of the two state variables in the model, K and η, as:

$$I_i = I(\eta_i, K_i) \quad (4)$$

which, assuming monotonocity, can be inverted as follows:

$$\eta_i = \eta(I_i, K_i) \quad (5)$$

Substituting (5) into (3), the estimating equation can be written as:

$$y_i = \alpha_o + \alpha_L L_i + \alpha_K K_i + \eta(I_i, K_i) + \xi_i \quad (6)$$

Now defining $\varphi(I_i, K_i) = \alpha_o + \alpha_k K_i + \eta(I_i, K_i)$ we obtain:

$$y_i = \alpha_L L_i + \varphi(I_i, K_i) + \xi_i \quad (7)$$

A first stage estimator that is linear in *L* and non-parametric in φ can be used to obtain a consistent estimate of α_L. Olley and Pakes (1996) employ a fourth-order polynomial in *I* and *K* to approximate $\varphi(.)$, estimating (2) using OLS, with output regressed on labour and the polynomial terms.

To identify α_k, two assumptions are made. First is that η follows a first-order Markov process and the second is that *K* does not immediately respond to ψ, defined as the innovations in productivity over last period's expectation:

$$\psi_{it} = \eta_{it} - E[\eta_{it} | \eta_{t-1}] \quad (8)$$

Putting (8) in (3) and defining *y** as output net of labour's contribution, we have:

$$y_i^* = y_i - \alpha_L L_i + \alpha_K K_i + E[\eta_{it} | \eta_{t-1}] + \xi_i \quad (9)$$

where $\xi_i^* = \psi_i + \xi_i$. Since ψ and ξ are both uncorrelated with *K*, regressing *y** on *K* and $E[\eta_{it} | \eta_{t-1}]$ produces a consistent estimate of α_K. Having obtained consistent estimates for both parameters of interest, α_L and α_K, we can construct the individual error term ε_i from (1) which will give us unbiased estimates of *TFP*.

The method suggested by Olley and Pakes (1996) however works if there is a strictly monotonous relationship between the proxy used, that is, investment, and output. This means that all observations with zero investment have to be dropped from the data. This condition may imply a considerable drop in the number of observations because often firms do not have positive investment in every year. Levinsohn and Petrin (2003) overcome this shortcoming and offer an estimation technique that is very close in spirit to the Olley and Pakes approach. Instead of investment, they suggest using intermediate inputs, such as material inputs, as a proxy, as most datasets contain significantly less zero-observations in materials than in firm-level investment. Levinsohn and Petrin also offer several specification tests to check for the appropriateness of the proxy used.[8] Since the Levinsohn-Petrin technique imposes less stringent data requirements than the Olley-Pakes approach, we therefore prefer to use the former for estimation purposes.

4.3 Data description

4.3.1 Data sources

This paper explores the link between SBRs and firm performance in the context of Zambia, a low-income country with a real GDP per capita of US $930 in purchasing power parity terms. The average annual growth rate of Zambia during the 1990s was around 0.40 percent, which improved to 4.6 percent during 2000–05 as a result of the economic reforms undertaken at the beginning of the new century. The overall contribution of the industrial sector (in value added terms) to GDP has however declined from 51.3

8. See Levinsohn and Petrin (2003) for a more detailed discussion on their estimation technique and the optimal choice of the proxy to be used.

percent in 1990 to 25.2 percent in 2005. Similarly, the total trade to GDP ratio has also shown a steady decline over the years and dropped from 72 percent in 1990 to 42 percent in 2005. The copper mining industry is the backbone of the Zambian economy and comprises more than 50 percent of the total goods exported by Zambia.

Data for our empirical analysis has been obtained from the Zambian enterprise survey, which is part of the Zambia Investment Climate Assessment (ICA) conducted by the World Bank. In its efforts to measure and compare investment climate conditions across countries, the World Bank has conducted enterprise surveys across a number of regions to highlight the microeconomic and institutional conditions for investment and to identify priority problems (in policy, regulatory, and institutional areas) to productive investment. The Zambian firm survey conducted in 2003 covers a sample of over 200 service and manufacturing firms of various sizes and located in different regions across Zambia.

The survey questionnaire has around 140 questions (with many questions further divided into parts) and covers information on the general aspects of the firms, their productivity, finance, sales, supplies, and he availability of infrastructure and services as well as their perceptions about the investment climate constraints and state-business relations. A list of the variables used in our empirical analysis along with the relevant question codes is summarized in Appendix B. Table 1 provides the summary statistics of the firm characteristics and investment climate indicators used in our estimation.

Table 1: Summary statistics

Variable	Observations	Mean	Std. dev	Min	Max
Age (years)	205	20.57	16.70	1	84
Size (Number of employees)*	195	277.77	879.28	9	9693
Foreign ownership (%)	206	24.48	40.09	0	100
State ownership (%)	206	2.97	15.20	0	100
Exporting (dummy variable)	206	0.36	0.48	0	1
Premises	205	2.70	5.47	0	70
Secondary and higher education (%)	192	73.97	27.67	5	100
Cost of power losses (%)	190	4.55	7.36	0	55
Corruption (Dummy variable)	205	0.60	0.49	0	1
Govt. inspections	205	13.56	36.53	0	403
Informal payments (% of annual rev)	160	1.52	3.89	0	30

Note: Number of employees includes both permanent and temporary employees.

The statistics indicate a wide variation in firm characteristics, suggesting that firms with different age, ownership, size, factor intensity and scale are covered in the survey. The average age of the surveyed firms is approximately 21 years and the average size is 278 employees; the majority of firms have foreign ownership of less than 50 percent and are non-exporting firms. Differences exist in terms of the investment climate indicators as well – for example, the average cost of power losses as a percentage of revenues ranged from zero to 55 percent. The average number of government inspections was 14 in 2001 however some firms had no inspectors visiting them whereas another had to face 403 inspections. Similarly, the range of informal payments as a percentage of annual revenues was 0 to 30 percent with the average for all surveyed firms being around 2 percent.

4.3.2 Measuring SBRs

te Velde (2006) identifies the organization of the private and public sectors as the main elements of healthy SBRs. The presence of well-organized and capable private sector organizations is a key element of good SBRs, as Weiss (1998) indicates, the more firms are involved in business associations the easier it is to co-ordinate policy between the government and business. The importance of business associations is further emphasized by Hisahiro (2005) who suggests that they play a significant role in facilitating the formulation, implementation, and monitoring of economic policies and provision of feedback to the government. In general, business associations help firms because they can provide a more coherent and consistent case and have a greater impact on the government. It also avoids the need for firms to duplicate lobbying efforts and hence is cheaper. To assess the impact of an organized private sector, we consider if the firm in question is a member of a business association or Chamber of Commerce (CoC) (Yes=1, No=0).

Some would argue that there is no business case for firms to organize themselves, as they could lobby government directly. Indeed, large natural resources firms might go directly to the government to negotiate new terms or address barriers in customs, though for some other firms it might simply indicate a waste of resources. Thus, to take into account direct lobbying by the firm, we include a dummy variable that captures if the firm lobbied government (Yes=1, No=0).

How efficiently government is organized is as crucial as the organization of the private sector for SBRs. Weiss (1995) argues that the government is the 'senior partner' in the state-business relationship which directs the policy patterns. The government may face numerous decisions on how it may organize itself to interact with business: an important measure is the presence and effectiveness of an investment promotion agency which could be seen as indicative for advocacy of private sector interests as a whole; another would be the presence of a governing unit specifically for the private sector. To measure the role of the government in state-business relations, we consider firm's perceptions about the delivery of services of the Zambia Investment Center to new businesses and businesses in operation (No help=0 to Very helpful=4).

Theoretically speaking, effective SBRs lead to a reduction in uncertainty surrounding the firm, positively affecting its performance. Hence, another measure for SBR which we include is a firm's opinion about economic and regulatory policy uncertainty hampering the operation and growth of its business. The greater the problem of uncertainty, the lower would be the effectiveness of SBRs. In addition, we include the percentage of senior management's time in a typical week spent in dealing with requirements imposed by government regulations such as taxes, customs, licensing etc., as other proxies for SBRs. Good SBRs are expected to lower the administrative constraints faced by the firms.

In our empirical analysis, we treat SBRs as given and exogenous to firm performance. This assumption is subject to debate as a firm's performance may determine its relationship with the state – for example, well performing businesses are in a stronger position to establish informal connections with the state elites and extract favours. Nonetheless, considering the limited information presented in the enterprise survey concerning SBRs, it is extremely difficult to find valid instruments for SBRs and address the endogeneity concerns here.

Table 2 presents the correlation between the various SBR measures available from the enterprise survey. Positive correlation exists between membership of a business association and firm lobbying, which suggests that joining a business association and lobbying the government are not mutually exclusive. In fact, 74 firms in the survey that are members of business associations also lobby government. Correlations between membership/lobbying, and policy uncertainty are low but negative. This suggests that firms that are members of business associations or lobby government do not view economic and regulatory policy uncertainty as a major obstacle to their business operations, and this behaviour supports our theoretical expectation that state business relations reduce policy uncertainty among businesses.

Similarly, correlation between the time spent by senior management in dealing with government regulations and membership/lobbying is negative. This is also in line with economic theory since, as outlined in Section 2, state-business relations are expected to contribute to the creation of efficient policies and institutions which reduce the administrative burden and costs faced by the businesses. However, policy uncertainty is positively correlated with the time spent in dealing with government regulations implying that firms that spend a large fraction of their time in dealing with government administrative and regulatory procedures and requirements also view policy uncertainty as a problem to their growth.

Table 2: Correlation between SBR measures for Zambia

	Member of business assoc.	Firm lobbying govt.	Policy uncertainty	Dealing with regulations
Member of business assoc.	1			
Firm lobbying govt.	0.27	1		
Policy uncertainty	-0.07	-0.10	1	
Dealing with regulations	-0.10	-0.21	0.23	1

Note: Number of observations=194
Source: Authors' calculations based on the Zambian Enterprise Survey (2003) by the World Bank Group

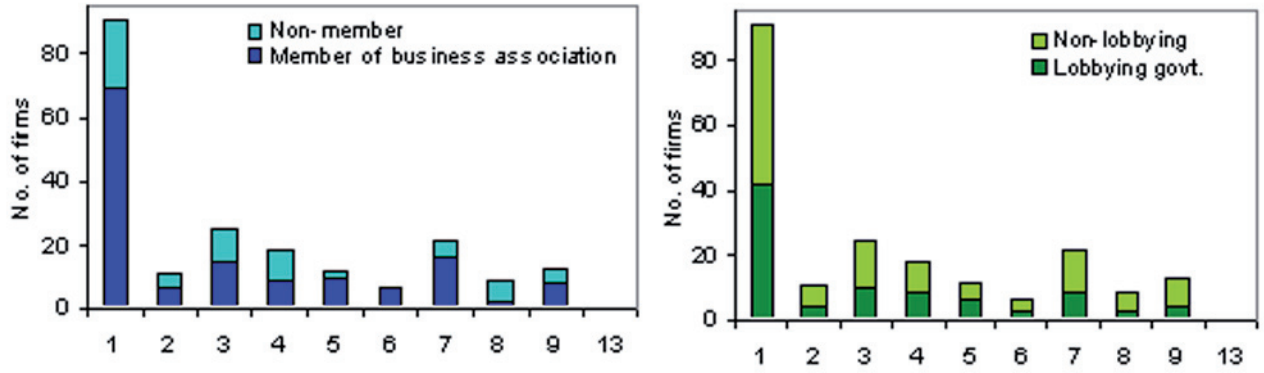
Figures 1, 2 and 3 present the distributions of firms that are members of business associations and those who lobby the government across sectors, regions, and size and ownership structure, respectively. The survey divides all firms into thirteen sectors: agriculture/forestry/fishing/drink/food/tobacco, clothing/footwear/leather, metal and metal products, mining and quarrying, textiles, wood and wood products, chemicals, construction materials, paper, printing and publishing, financial services, tourism, transport, storage and warehousing, wholesale and retail. Figure 1 shows that the highest ratio of member to non-member firms and lobbying to non-lobbying firms belong to the first group, eighteen firms in the survey belong to the mining and quarrying industry and half of them are members of business associations and lobby governments.

Figure 2 shows that the highest ratio of member to non-member firms in the survey among the three largest cities of Zambia – Lusaka, Ndola and Kitwe – is in Ndola followed by Kitwe and Lusaka. The ratio

of lobbying to non-lobbying firms is the highest in Ndola followed by Lusaka and Kitwe.[9] Figure 3 shows that firms of different sizes (in terms of the total number of employees) join business associations or lobby government to foster their formal business relations – for example, approximately 80, 61 and 67 percent of the total large, medium and small firms in the survey are members of business associations respectively. The numbers are smaller for lobbying government and around 49, 42 and 28 percent of large, medium and small firms admit to lobby government, respectively.

The effect of foreign ownership on the two SBR measures is also unclear. Firms with foreign stakes of between 25 to 50 percent have the highest percentage of member firms, however, this category has the lowest percentage of firms that lobby government. The percentage of firms that are members of business associations and those that lobby government is almost the same across the categories of foreign ownership of less than 25 percent and foreign ownership of over 50 percent.

Figure 1: Private sector organization across sectors in Zambia (2003)



Notes: 1=Agriculture/Forestry/Fishing/Food/Drinks/Tobacco, 2=Clothing/Footwear/Leather, 3=Metal/Metal products, 4=Mining/Quarrying, 5=Textiles, 6=Wood/Wood products, 7=Chemicals, 8=Construction material, 9=Paper/Printing/Publishing, 13=Wholesale/Retail; there were no firms in the financial services sector, tourism or transport sectors that were members of a business association or lobbied government.

Figure 2: Private sector organization across regions in Zambia (2003)

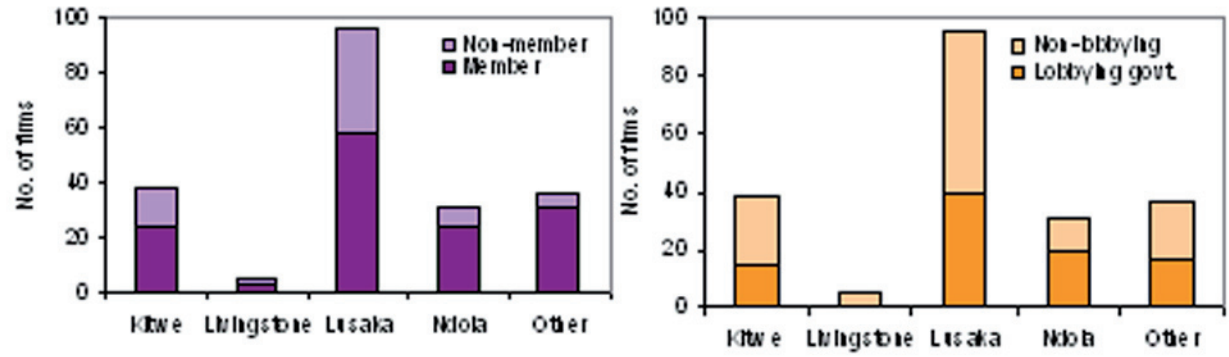
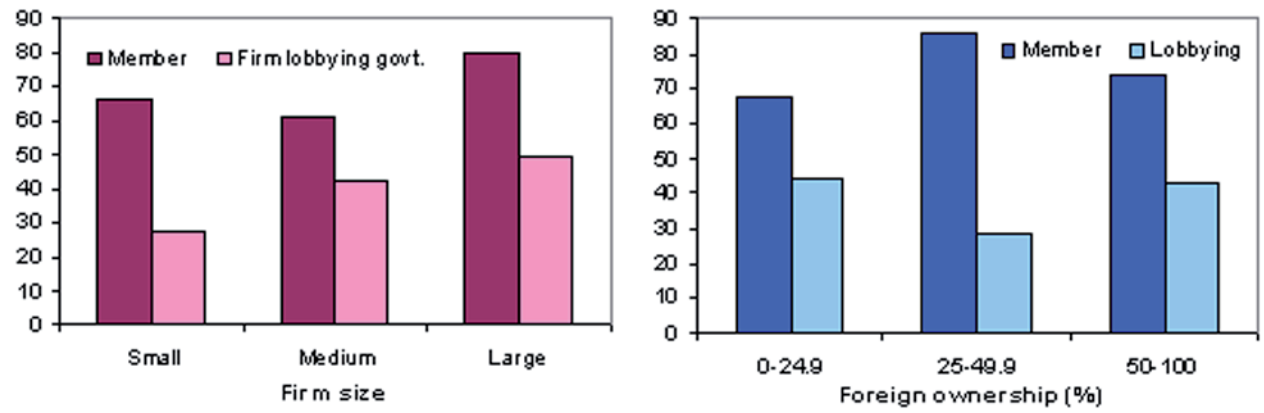


Figure 3: Private sector organization according to firm size & ownership in Zambia (%)



Notes: Small = total number of employees less than 19; Medium = Total number of employees between 20–100; Large = Total number of employees greater than 100; Total number of firms with foreign ownership between 0–24.9=147; Total number of firms with foreign ownership between 25–49.9=7; Total number of firms with foreign ownership between 50–100=53.

9. Ndola is the centre of Copperbelt, which is the copper mining region of Zambia

4.3.3 Firm characteristics and investment climate indicators

While assessing the effect of SBRs on firm performance, we need to control for several other factors that may explain heterogeneity of firm performance. These include firm-characteristics as well as the characteristics of the external environment in which the firm operates that can affect performance. The firm-characteristics that we control for are standard variables in empirical literature on investment climate and industrial organization and include the age, size, location and sector of the firm. Labour quality is another possible factor to affect firm performance, since knowledge and skills of workers at businesses may directly increase firm performance, or/and indirectly act as a complement to improved technologies, business models or organizational practices (Abowd et al. 2002). We use the percentage of the work force in a firm with at least a secondary education as a measure of labour quality. In addition, research on firm performance has identified three features, namely the extent of firm's export orientation, competition and ownership, as key determinants of firm productivity. In general, firms that export, face higher competition and have foreign ownership are found to perform better (Svejnar, 2006), hence, we control for these factors while estimating (see equation 2).

The spatial organization of firms can also play a role in determining its productivity. Firms commonly operate multiple plants for the same product and separate administrative functions from the production site – for example, a firm may find it beneficial to locate production facilities in smaller and more specialized sites and set up its headquarters and administrative functions in a large city with better access to financial and business services (Duranton and Puga 2002); firms with geographically dispersed plants may establish their administrative units at a central location from where they can reach all plants easily and quickly. Such separation can enhance a firm's performance or it could impose significant communication costs (Aarland et al. 2004). Similarly, firms with more than one plant may experience multi-plant economies, defined as cost advantages from operating several plants,[10] they may also gain productivity from the closure of relatively unproductive plants and the opening of productive ones (Seabright, 2000). However, diseconomies from operating plants in multiple locations can arise due to co-ordination and control problems: to estimate the effect of firm spatial organisation, we include a proxy which measures the number of premises (for example, production facilities, offices, etc.) as part of firm characteristics.

The investment climate in which firm operates comprises of a variety of factors including public utilities, transport, information and communication technology infrastructure, and regulation and bureaucracy. Provision of public utilities such as electricity, water, gas and waste disposal services determines firm productivity directly, as interrupted supplies of public services may result in the wastage of other inputs and therefore reduce TFP. Transaction costs associated with regulations, bureaucracy and poor institutions reflect resources diverted from production and hence may have significant implications for a firm's performance (World Bank, 2004; de Groot et al. 2004). Following earlier literature, for example, Dollar et al. (2003) and Subramanian et al. (2005), we capture these external factors influencing a firm's productivity by including the loss of revenues due to power outages as a percentage of total sales of the firm, the number of days during the year the telephone services were unavailable, the total number of government inspections during the year, and measures for corruption.[11]

The costs imposed by power outages, telephone connection unavailability and corruption are expected to have a negative effect on total factor productivity. However, the effect of number of inspections remains theoretically unpredictable. On the one hand, government inspections are important mechanisms for enforcing regulations but on the other, firms often complain about government inspectors harassing them, favouring cronies or demanding bribes. This is especially true for developing countries where inspections often impose unnecessary costs and risks on businesses while failing to ensure compliance.

Results

In section 3 we argued that effective state-business relations will affect firm performance in several ways. Joining a business association will help firms to communicate with and lobby governments for more efficient policies, institutions and government expenditure, but also reduce policy uncertainty by providing information about government policies and product/factor markets. Thus SBRs, measured at the firm level by an organized private sector, contribute to a rise in firm productivity through these various channels. We also hypothesised that the effects of SBRs and lobbying will depend on the size and ownership structure of firms. The discussion below presents the results of estimation and hypotheses testing.

5.1 Estimation of the production function

To isolate and test for the importance of SBRs on firm performance, we estimate the production function as expressed in equation (1) to retrieve estimates of total factor productivity (*TFP*). *y* represents

10. See Scherer et al. (1975) for a detailed discussion on multi-plant economies.

11. We measure corruption by : 1) the percentage of total annual revenues that the firm spent in making informal payments, and 2) by constructing a dummy variable on the basis of the survey question if the firm viewed corruption as a problem for its production and growth (respondents answered on a scale from no problem = 0 to highly problematic = 4). Following McArthur and Teal (2002), we interpret this question as asking whether the firm typically faced corruption in its operations and construct a binary variable from the answers. The responses of 0 and 1 are interpreted as indicating that the firm never or seldom faced corruption and given a value of zero whereas 2, 3 and 4 are treated as firm faced corruption and assigned a value of one.

total value added and is calculated by subtracting the cost of material inputs and energy from the total market value of production, *L* is the total number of employees and *K* is the gross value of assets. We estimate (1) using: (a) pooled ordinary least square method without controlling for fixed effects, (b) the fixed effects estimation technique, and (c) the Levinsohn-Petrin approach outlined in Section 3. We use panel data for three years (1999–2001) of the surveyed firms to estimate the production function.

Table 3 reports the results obtained from the three estimation methods. The simple OLS estimates, presented in the first column, are obtained from a dataset where firms are pooled across sectors and locations. The estimated coefficients for (log) labour and (log) capital show that both labour and capital have significantly positive effects on total value added with the effect of capital almost twice the size of labour. The two variables are jointly significant and explain almost 60 percent of the variation in total value added.

However, the OLS estimates however may be biased, since they are based on the assumption that the firm-specific time invariant effects are similar across all firms included in the dataset, when in reality, this assumption may not be true. For example, firms operate in different sectors and locations and have access to different technologies which may affect their output and performance. To take the effects of the firm specific factors into account, we re-estimate the production function and control for these fixed effects, with the results for the fixed effects estimation presented in the second column of Table 3. To test for the presence of firm specific effects, we employ the F-test for their joint significance and are able to reject the null of the equality of firm intercepts against the alternative hypothesis of some differences.

The overall fitness of the estimated equation has improved substantially in the fixed effects estimation. Both labour and capital have strong positive effects on output measured in value added terms, though interestingly, the estimated coefficient of (log of) labour has almost doubled in magnitude and the effect of labour on value added is larger than that of capital. Nonetheless, these estimated coefficients may also be biased as they ignore the realistic possibility that the productivity shocks accruing to firms may affect their usage of factor inputs. The potential correlation between factor inputs, labour and capital, and the unobserved firm specific productivity shocks, is an issue for concern since it may produce inconsistent estimates of the production function.

To take into account the possible endogeneity issue, we estimate the production function using the Levinsohn-Petrin (*LP*) technique. We use material inputs as our proxy variable, labour as the free variable and capital as the state variable; the last column of Table 3 presents the consistent estimates of labour and capital obtained from the *LP* technique. We find that for a one percent increase in labour and capital, total value added increases by about 0.25 percent and 0.47 percent, respectively. The last row of the table presents the result for the Wald test of constant returns to scale which tests if the estimated coefficients sum to one. In our case, the null hypothesis of constant returns to scale is rejected and the estimated parameters suggest the presence of decreasing returns to scale.

If we compare the parameter estimates for the free variable labour from simple OLS, fixed effects and the *LP* techniques, we observe that the *LP* estimates are smaller than both OLS and fixed effects estimates, which confirms the theoretical and empirical predictions of Levinsohn and Petrin (2003). The effect of controlling endoengeity on the coefficient of the state variable capital depends on the degree of correlation among the inputs and the productivity shocks (Petrin, 2003). Here, the fixed effects estimate of capital is lower than the LP estimate whereas that obtained from simple OLS is approximately the same.

Table 3: Estimation results for the production function

Variables	OLS	Fixed Effects	Levinsohn-Petrin
Log (Labour)	0.291***	0.583***	0.246***
	(0.055)	(0.166)	(0.071)
Log (Capital)	0.469***	0.204***	0.472***
	(0.034)	(0.076)	(0.081)
Constant	5.711***	7.948***	
	(0.354)	(1.167)	
No. of observations	393	393	357
F-statistic	283.80***	11.90***	
Adjusted R2	0.59	0.85	
F-test for fixed effects		5.39***	
Wald test of constant returns to scale			12.63***

Notes: the dependent variable in all cases is log (valueadded); *, ** and *** indicate significance at 10%, 5% and 1% levels, respectively; values reported in parentheses are standard errors; estimations were conducted using panel data for 3 years (1999-2001).

5.2 SBRs and firm performance

In the next step of our estimation, we obtain measures of *TFP* from the production functions estimated using the fixed effects and *LP* methods. The (log of) *TFP* is then related to the internal and external characteristics of the firm, and the SBR measures using cross-sectional data for 205 Zambian firms. The regression results for the *TFP* estimates obtained from the fixed effects method do not differ much from the *TFP* estimated obtained from the *LP* technique in terms of significance and signs of the estimated coefficients. We present and discuss in detail the results of the latter here.[12]

Columns (1) to (5) of Table 4 show the estimated effects of various SBR measures on firm performance while controlling for various other factors. In the first specification presented in column (1), we include the two SBR measures, membership of a business association and firm lobbying government, with a number of firm characteristics such as age, size and ownership structure of the firm but do not control for sector specific and location specific effects, which may cause heterogeneity of firm performance. We find that the overall fit of this simple equation is poor, reflected by a low R-squared and the joint insignificance of all the explanatory variables, and only the variable capturing foreign ownership is significantly positive.

In the next specification we control for sector specific and location specific effects to address the omitted variable bias that may have affected our results in column (1). Although we find only two variables, foreign ownership and member of a business association to be individually significant, the diagnostics of the estimated equation have improved noticeably. The R-squared jumps to 0.16 and the F-statistic indicates that all the independent variables are jointly significant. The estimated coefficient of membership becomes positive and significant, so that being part of an organised private sector helps firm performance.

In column 3 of Table 4 we augment the basic specification to include variables that reflect the investment climate constraints and have been identified as important determinants of firm performance in earlier empirical literature. Specifically, we include variables to capture the cost to the firm of power outages or surges from the public grid and the corruption faced by the firm.[13] The results show that losses due to power outages adversely affect a firm's performance whereas foreign ownership and membership of a business association have a positive influence. Thus, joining a business association increases productivity even if we control for the other institutional variables. All the remaining variables including lobbying government are found to be insignificant.

In column (4) we include two other important features of a firm that may affect its productivity. These include measures for the quality of labour – proxied by the percentage of labour force with at least secondary education – and the economies of scale/scope experienced through a number of premises. As explained above, the quality of labour is expected to positively influence a firm's *TFP* however the theoretical expectation for the effect of multiple plants/premises is unclear; the findings reveal that for Zambian firms, both these factors have a significantly positive effect, (note that the effect of membership is robust to the inclusion of these variables and it is significant at the 10 percent level in this specification).

Finally, in column (5) we include another proposed measure of SBR effectiveness, that is, the economic and regulatory policy uncertainty.[14] The estimated coefficient of this variable is expected to have a negative sign. In addition, we include the number of government inspections as another institutional variable in this most general specification. Contrary to expectations, we obtain a positive sign for uncertainty. However, its estimated coefficient is highly insignificant implying no effect of uncertainty on firm productivity in the Zambian case.[15]

Overall, our findings indicate that regardless of the specification used, once we control for sector and location effects, membership of the association is an important determinant of firm's productivity in Zambia and increases firm's productivity in the range of 37 to 41 percent. None of the other SBR measures including lobbying with government have any significant effect on total factor productivity in Zambia.

In the next step, we assess the usefulness of particular services provided by business associations to member firms. This helps us in disentangling the important aspects of business associations since individual services affect productivity through different channels – for example, lobbying government may affect productivity through changes in policies and institutions or improvements in infrastructure whereas provision of information on regulations or markets may resolve informational asymmetries and reduce the uncertainty faced by firms. The enterprise survey contains data on the provision of six different services (lobbying government; resolution of disputes with official, workers or other firms; information and/or contracts on domestic product/input markets; information and/or contracts on international product/input markets; accreditation standards or quality of products/reputational benefits; information on government

12. The results of the *TFP* estimated obtained from the fixed effect method are present in Appendix B.
13. We also include the number of days for which the telephone service was unavailable and the percentage of annual revenues spent on making informal payments as alternate proxies for investment climate constraints. However, both these variables were insignificant in all cases and hence were not included in the chosed specification.
14. We also included the firm's perceptions about the delivery of services of the Zambia Investment Centre to businesses as an alternate SBR measure. However, we dropped it because of its insignificance and also because it reduced the number of observations in the sample substantially.
15. This maybe because the proxy used for uncertainty is a subjective variable based on the perceptions of businesses.

Table 4: Estimation results for total factor productivity

Variables	(1)	(2)	(3)	(4)	(5)
Age	0.00	0.00	0.00	0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)
Size	0.00	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Foreign	0.01**	0.01*	0.01*	0.00*	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
State	0.23	0.159			
	(0.35)	(0.27)			
Export	-0.10	0.048			
	(0.17)	(0.21)			
Member	0.33	0.41*	0.41*	0.38*	0.37*
	(0.21)	(0.22)	(0.24)	(0.23)	(0.23)
Lobbying	-0.07	-0.05	-0.01	-0.11	-0.14
	(0.17)	(0.18)	(0.18)	(0.18)	(0.18)
Power losses			-0.03**	-0.03**	-0.03**
			(0.01)	(0.01)	(0.01)
Corruption			0.22		
			(0.19)		
Premises				0.04***	0.03***
				(0.01)	(0.01)
Education				0.01**	0.01**
				(0.00)	(0.00)
Uncertainty					0.03
					(0.09)
Inspections					0.01
					(0.01)
Constant	5.70***	5.49***	5.33***	5.12***	5.06***
	(0.21)	(0.28)	(0.35)	(0.37)	(0.40)
Sector effects	No	Yes	Yes	Yes	Yes
Location effects	No	Yes	Yes	Yes	Yes
Observations	147	147	138	133	132
F-statistic	1.31	3.07***	1.37	4.97***	4.47***
R-squared	0.07	0.16	0.20	0.25	0.26

Notes: the dependent variable in all cases is log of total factor productivity obtained from Levinsohn-Petrin technique; *, ** and *** indicate significance at 10%, 5% and 1% levels, respectively; values reported in the parentheses are robust standard errors.

regulations) and the perceived effectiveness of these services by the business association to its members.[16]

We estimate the general specification as in column (4) using the service provided by the association as the SBR variable instead of membership. The estimated coefficients are summarized in Table 5. The results show that lobbying government and providing information on international and domestic markets, and government regulations are the services with a significant positive impact on the productivity of Zambian firms. In terms of magnitude, lobbying government appears to be the most effective service of the business associations. This result is supported by the data on firms' perceived effectiveness of the services: as reported in the last column of Table 5, the arithmetic mean of the values assigned by each firm to different services indicates that lobbying and providing information on regulations and markets are the services of the highest value to firms. These findings therefore suggest that the effect of SBR works primarily through lobbying government and to a lesser extent through the resolution of information related market and co-ordination failures.

16. The provision of a particular service is a dummy variable equal to 1 if the business association provided the service and zero otherwise. The perceived effectiveness of the services is measured on a scale of 0 to 4 where 0 = no value, 1 = minor value, 2 = moderate value, 3 = major value, 4 = critical value. Of the 143 firms that were members of business associations, the association provided lobbying, resolving of disputes and accreditation services 131, 52 and 54 firms, respectively. Information on regulations, domestic and international markets was provided to 121, 88 and 79 firms respectively.

Table 5: Estimation results for TFP according to services of business associations

Variable	Estimated coefficient	Sample mean
Lobbying government	0.60**	1.96
Information on international markets	0.47**	1.89
Information on domestic markets	0.47**	1.93
Information on government regulation	0.43*	2.26
Accreditation standards	0.22	1.68
Resolution of disputes	-0.24	1.80

Notes: the dependent variable in all cases is log of total factor productivity obtained from Levinsohn-Petrin technique; the other variables included in the estimated equation are firm's age, size, foreign ownership, number of premises, cost of power losses, lobbying, percentage of employees with atleast secondary education, and, sector and location specific effects; * and ** indicate significance at 10% and 5% levels, respectively.

5.3 Small vs. large and foreign vs. domestically owned firms

It is sometimes argued that the effect of SBRs will be greater for large firms as compared to small and medium sized firms because of their improved, and in many cases informal, links with state agents. The efficacy of business associations for large firms is also debated, with some considering no business case for large firms to organize themselves as they could lobby government directly to negotiate new terms or address barriers in customs. To test these claims, we divide the total sample into two groups according to firm size: the first group comprises small and medium firms, that is, those with total number of employees less than or equal to 100, and the second group consists of large firms with the total number of employees exceeding 100.

The first two columns of Table 6 present the results for the effect of SBRs on firm productivity for small and medium, and large firms, respectively.[17] Interestingly, we find a positive effect of membership on productivity for the first group of small and medium firms, which is significant at the 5 percent level. However, we do not find any statistically significant effect of joining a business association or lobbying the government on the productivity of large firms. The positive impact of membership for the small and medium firms suggests that these firms prefer to join business associations as they lack other means for effective lobbying. Organized associations provide these firms a platform to pool resources, build a more coherent and consistent case, and exercise a greater impact on the government.

Table 6: Estimation results for TFP according to size and ownership

Variables	Small & Medium	Large	Foreign Ownership (<50%)	Foreign Ownership (>50%)
Age	0.01	0.00	0.00	0.00
	(0.01)	(0.00)	(0.01)	(0.03)
Size			0.00	0.00
			(0.00)	(0.00)
Foreign	0.01**	0.00		
	(0.00)	(0.00)		
Export	0.27	0.00	0.15	-0.21
	(0.31)	(0.00)	(0.22)	(1.12)
Premises	-0.09	0.04***	0.04***	-0.18
	(0.09)	(0.01)	(0.01)	(0.16)
Lobbying	-0.05	0.01	0.01	1.60*
	(0.27)	(0.30)	(0.20)	(0.88)
Member	0.62**	-0.23	0.31	1.30
	(0.30)	(0.40)	(0.24)	(1.72)
Power losses	-0.03**	-0.01	-0.01	-0.17**
	(0.02)	(0.30)	(0.01)	(0.08)
Constant	5.32***	6.06***	5.69***	5.97***
	(0.44)	(0.43)	(0.32)	(1.71)
Sector effects	Yes	Yes	Yes	Yes
Location effects	Yes	Yes	Yes	Yes
Observations	79	59	108	30
F-statistic	2.05**	4.22***	4.10***	3.14**
R-squared	0.31	0.37	0.21	0.60

Notes: the dependent variable in all cases is the log of total factor productivity obtained from Levinsohn-Petrin technique; *, ** and *** indicate significance at 10%, 5% and 1% levels, respectively; values reported in the parentheses are robust standard errors.

17. The *TFP* estimates used are those obtained from the Levinsohn-Petrin technique

As discussed in Section 2, the ownership structure of firms may be another factor influencing the effect of SBRs on firm performance. Foreign owned firms, especially those in developing countries, are often accused of influencing the governments through their powerful economic positions and connections as well as the extensive resources available for effective lobbying. If this is true and effective, then we would find the effect of SBRs to be on average larger for foreign owned firms than domestically owned ones.

The last two columns of Table 6 present the effect of SBRs on *TFP* based on their foreign ownership. For both types of firms, that is, those with less than 50 percent and equal to or greater than 50 percent foreign ownership, we do not find any significant effect of membership on firm performance. However, we find a statistically significant positive effect of lobbying on productivity for firms with 50 percent or more foreign ownership. This finding suggests that in Zambia, foreign owned firms have lobby government more effectively than their domestic counterparts.

5.4 SBRs across sectors and locations

In addition to examining the effect of SBRs on *TFP* according to firm size and foreign ownership structure, we believe it is worthwhile to assess if the effect of SBRs varies across sectors and locations. For example, it is possible for the effect of SBRs to be more pronounced for sectors in which the country has a comparative advantage and/or for locations which are the industrial and commercial hubs of the economy. Accordingly, we estimate equation (2) for individual sectors as well as for different locations (Table 7).

Table 7: Estimation results for TFP according to sector and location

Variables	Sectors		Location			
	Resource intensive [a]	Others [b]	Lusaka	Ndola	Kitwe	Others
Age	0.00	0.00	0.01	0.00	-0.03	0.00
	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.00)
Size	0.00***	0.00***	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Foreign	0.01***	0.01	0.01***	-0.01***	0.00	0.01***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Export	-0.24	0.37	0.10	1.34	1.23***	-0.17
	(0.23)	(0.28)	(0.37)	(0.75)	(0.61)	(0.21)
Premises	0.04***	-0.10	0.05***	0.03	0.06	-0.12*
	(0.01)	(0.07)	(0.01)	(0.04)	(0.06)	(0.07)
Lobbying	0.22	-0.42	-0.29	-0.78***	-0.61	0.29*
	(0.20)	(0.32)	(0.36)	(0.23)	(0.52)	(0.17)
Member	0.26	0.53	0.32	-1.64***	2.13***	-1.12***
	(0.31)	(0.31)	(0.36)	(0.63)	(0.77)	(0.35)
Power losses	-0.02	-0.06***	-0.03	-0.09***	0.017***	-0.07***
	(0.02)	(0.02)	(0.03)	(0.04)	(0.06)	(0.01)
Constant	5.55***	6.57***	5.54	7.45***	4.33***	7.35***
	(0.33)	(0.75)	(0.38)	(0.75)	(0.52)	(0.40)
Sector effects			Yes	Yes	Yes	Yes
Location effects	Yes	Yes				
Observations	82	56	61	25	26	26
F-statistic	4.54***	31.41***	4.12***	9.87***	2.50***	11.09***
R-squared	0.28	0.33	0.31	0.77	0.82	0.69

Notes: the dependent variable in all cases is log of total factor productivity obtained from Levinsohn-Petrin technique; *, ** and *** indicate significance at 10%, 5% and 1% levels, respectively; values reported in the parentheses are robust standard errors; a) resource intensive includes metal/metal products, mining and quarrying, wood and wood products, and agriculture/forestry/fishing/food/drink/tobacco; b) others includes clothing/footwear/leather products, textiles, chemicals, construction material, paper/printing/publishing, financial services, tourism, transport/storage, and wholesale/retail.

The enterprise survey covers firms belonging to the following thirteen sectors: agriculture/forestry/fishing/drink/food/tobacco, clothing/footwear/leather, metal and metal products, mining and quarrying, textiles, wood and wood products, chemicals, construction materials, paper, printing and publishing, financial services, tourism, transport, storage and warehousing, and wholesale and retail. Since the number of observations in most sectors is small, we group the thirteen sectors into two categories: (i) resource intensive sectors, and (ii) others. The first group includes agriculture/forestry/fishing/drink/food/tobacco, metal and metal products, mining and quarrying, and wood and wood products, whereas the second group consists of the remaining sectors – the results for both groups are presented in Table 7.

The goodness of fit statistics for both equations indicates a reasonable fit. For both types of sectors, we do not find a statistically significant effect of joining a business association or lobbying government on *TFP*.

Next, we estimate *TFP* for firms according to their locations. For firms in Lusaka, we find a significantly positive effect of foreign ownership and premises on productivity; however, we do not find any significant impact of membership or lobbying on firm performance. In the estimated equation for Ndola, the results show a negative effect of foreign ownership, lobbying and membership whereas for Kitwe, we find a significantly positive effect of membership on firm productivity. For firms in all other locations, we find a positively significant effect of lobbying on productivity, but a significantly negative effect of membership on productivity. These findings should however be interpreted with caution and not too much emphasis should be placed on them: the number of observations in these samples is quite small and we suspect high levels of multi-collinearity between the variables.

Conclusions

This paper examines whether an effective state-business relationship (SBR) facilitated by an organized private sector promotes the economic performance of firms. Effective SBRs lead to a more optimal allocation of resources in the economy, including an increased effectiveness of government involvement in supporting private sector activities and removing obstacles. There are several key factors associated with effective SBRs including an organized private sector vis-à-vis the public sector, an organized public sector vis-à-vis the private sector, an institutionalized mechanism of SBR, and absence of harmful collusive behaviour. This paper exploits the enterprise survey data of the World Bank Group for Zambia for around 200 firms with data on performance, including data that facilitates the calculation of productivity levels, and on the institutional context facing or perceived by firms. We focus on the effect of an organized private sector and firm lobbying on firm performance.

Using estimates of productivity that account for endogeneity problems in the production function, our results support the view that in Zambia being a member of a business association improves firm performance in the form of productivity improvements. This finding is robust to including other variables that are commonly used to describe the investment climate, and robust to using estimates of productivity that account for endogeneity problems. Overall, membership of a business association increases firm's productivity in the range of 37 to 41 percent. We also find that of the various services provided by a business association to its members, lobbying government and providing information on government regulations and domestic and international product/input markets are the most useful for the firm and significantly enhance firm productivity.

Interestingly, we find that joining a business association is particularly useful for small and medium sized firms. The positive impact of membership for the small and medium firms suggests that these firms may do well to join business associations as they lack other means for effective lobbying. Organized associations provide these firms a platform to pool resources, build a more coherent and consistent case, and exercise a greater impact on the government. We also find that lobbying by foreign owned firms has a significantly positive effect on their productivity. This supports the commonly held view that foreign firms, especially in developing countries, influence government behaviour in their favour due to better lobbying.

Overall, our findings support the view that organized private sector and effective state-business relations are helpful for firm performance. This stands in contrast to the general discussion in Brautigam et al. (2002) that membership of business associations and their perceived effectiveness has declined in Zambia over the course of the 1990s. Further work is needed in Zambia to understand the specific context, but also in other African countries to test for commonalities.

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Appendix A

Box 1: State-Business Relations in Zambia

The Private Sector

The Zambian Business Forum (ZBF), a group of the 5 main business association in Zambia, was formed in late 2002. At its first scheduled meeting in 2003, the ZBF degenerated early into private interests.[1]

The Public Sector

The Zambian Parliament formed the Zambian Investment Centre in 1991 to attract investment. The Tripartite Consultative Labour Council (TCLC) was established two years later in 1993 by government, as a forum for labour, business and government though its efforts were unsuccessful.[1]

Collusive Behaviour

The Competition and Fair Trading Act was enacted in 1994 and oversees price-fixing, monopolistic and other non-competitive behaviour.[1] Corruption is seen as a major problem in Zambian government; the Zambian government has formed an Anti-Corruption Commission to weed it out. Results are limited; as recently as 2003 the information secretary announced, 'Corruption in Zambia has spread like cancer infecting the whole body.'[1] ZIBAC is criticised for lacking transparency.

Defining Moments in Zambian SBR's since the 1970s

- 1991, ZIC founded to attract investment
- 1993, TCLC formed
- 1994, Competition and Fair Trading Act
- 2002, Five Business Associations join to form ZBF
- Early 2003, President meets with ZBF
- Late 2003, President forms ZIBAC
- 2004, PSD Forum links ZBF, President and ZIBAC

Appendix B

Table B1: Description of variables

Variables	Abbreviation	Units	Question Code
Total value added[1)]	valueadded	In '000 kwacha	(Z17Q125A1-Z17Q125A6-Z17Q125A8-Z17Q125A9-Z17Q125A10)
Number of workers [2)]	labour Number		Z15Q103C+Z15Q104A1
Capital[3)]	capital	In '000 kwacha	Z17Q136A2+Z17Q136A3
Sector	sec	Dummy variable	ZSEC
Location	loc	Dummy variable	ZLOC
Age of firm	age	Years	Z1Q1
Foreign ownership	foreign	Percentage	Z1Q3A2
State ownership	state	Percentage	Z1Q3B
Exporting firm	exports	Yes=1 No=0	Z12Q72A1
Number of premises in Zambia	premises	Number	Z1Q9A
% of workers with at least 7 yrs of education	education	Percentage	Sum (Z15Q112B-D)
Losses due to power outages	powerlosses	Percentage	Z4Q22
Unavailable telephone service	teleunavailable	No. of days	Z4Q21C1
Corruption	corruption	Scale 0–4	Z3Q19K
Economic and regulatory policy uncertainty	uncertainty	Scale 0–4	Z3Q19I
Member of a business association or CoC	Member	Yes=1 No=0	Z4Q291
Time required in dealing with regulations	Regtime	Percentage	Z4Q35
Firm lobbying with government	lobbying	Yes=1 No=0	Z5Q391
Help of Zambia Investment Centre to businesses	Zinvcentre	Scale 0–4	Z4Q322
No. of government inspections	Inspections	Number	Z14Q100A1

Notes: 1) Total value added=total market value of production-total material costs-total energy costs; 2) Number of workers includes permanent and temporary workers; 3) Capital is the gross value of machinery, equipment (including vehicles), land, building and leasehold improvement

Table B2: Estimation results for total factor productivity

Variables	(1)	(2)	(3)	(4)	(5)
Age	0.00	0.00	0.00	0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Size	0.00	0.00	0.00	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Foreign	0.01***	0.01***	0.01**	0.01**	0.01**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
State	0.25	0.24			
	(0.33)	(0.30)			
Export	0.07	0.16			
	(0.19)	(0.21)			
Member	0.29	0.31	0.17	0.34	0.33*
	(0.22)	(0.24)	(0.19)	(0.24)	(0.25)
Lobbying	0.15	0.15	-0.02	0.06	0.03**
	(0.17)	(0.19)	(0.01)	(0.19)	(0.19)
Power losses			-0.02	-0.03**	-0.03**
			(0.01)	(0.01)	(0.02)
Corruption			0.19		
			(0.20)		
Premises				0.03***	0.03***
				(0.01)	(0.01)
Education				0.01**	0.01***
				(0.00)	(0.00)
Uncertainty					0.02
					(0.09)
Inspections					0.01
					(0.01)
Constant	-0.25	-0.65***	-0.65**	-1.06***	-1.10***
	(0.23)	(0.32)	(0.32)	(0.38)	(0.44)
Sector effects	No	Yes	Yes	Yes	Yes
Location effects	No	Yes	Yes	Yes	Yes
Observations	147	147	138	134	133
F-statistic	1.76*	1.46	1.55	5.33***	4.38***
R-squared	0.10	0.19	0.20	0.27	0.29

Notes: the dependent variable in all cases is log of total factor productivity obtained from the fixed effects method; *, ** and *** indicate significance at 10%, 5% and 1% levels, respectively; values reported in the parentheses are robust standard errors.