The Effect of State Capacity on the Comparative Employment Growth Rates of Government-Owned-Firms and Non-Government-Owned Firms: Evidence from sub-Saharan Africa

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Introduction and Literature Review

Over the past few decades, two key strands of literature have emerged in the realm of political economy: state capitalism and political institutions. Studies in both strands of literature have investigated the effects of political variables (e.g., government ownership and the strength of political institutions) on firm-level economic performance (Government ownership: Lazzarini & Musacchio 2018; Dharwadkar et al. 2000; Tihanyi et al. 2019; Musacchio et al. 2015. Political institutions: North 1990; Acemoglu & Robinson 2012; Guillén & Capron 2016). In addition, some research has investigated the intersection of these two strands (Aguilera et al. 2021 and Heugens et al. 2020). These two intersectional studies have hypothesized a variety of causal factors regarding state capacity's effect on the financial performance of government-owned firms, such as investigating the role of government owners extracting private benefits of control and the ability to pursue political objectives over business objectives. However, this intersectional research focuses on the effect of state capacity solely on the *financial* performance of government-owned firms (or state-owned enterprises; SOEs) and does not specifically investigate causal relationships in developing contexts. Instead of investigating financial performance, this paper focuses on how state capacity and government ownership affect firm-level employment growth—of which there is scant research—in order to potentially identify other causal mechanisms of state capacity on relative SOE performance (i.e., in comparison to non-government-owned firms).

Heeding the calls of Aguilera et al. for SOE scholarship to consider the political environments in which government-owned firms operate by incorporating mechanisms of political institutions (or state capacity) into discussions on relative SOE performance, this paper seeks to examine the effect of state capacity on the employment growth of government-owned

firms as compared to that of non-government-owned firms. Thus, the main research question is not to compare the employment growth rates of government-owned firms under different levels of state capacity, but rather to compare the employment growth rates of government-owned firms in relation to non-government-owned firms under different levels of state capacity.

In order to add to existing scholarship by focusing on a developing context, this paper will use country-level and firm-level data from 34 sub-Saharan African countries to compare firm-level employment growth of government-owned firms and non-government-owned firms in countries with high state capacity and in countries with low state capacity. By examining the effect of macro-level political variables on firm-level economic variables, this paper attempts to more deeply understand micro-level political economy in a developing context. The results of this paper fill in the research gaps regarding the effects of state capitalism and political institutions (i.e., state capacity) on firm-level employment growth by demonstrating that in countries with high state capacity, government-owned firms have significantly lower employment growth rates than non-government-owned firms, whereas in countries with low state capacity, government-owned firms have significantly higher employment growth rates than non-government-owned firms.

Methodology, Data, and Variables

In order to explore the effect of state capacity on the comparative firm-level employment growth rates between government-owned-firms and non-government-owned firms, this paper employs OLS estimation multiple regression models. For firm-level variables, this paper uses various World Bank Enterprise Surveys (WBES) from 9,168 firms in 34 sub-Saharan African countries over the period 2009-2019. For country-level variables related to state capacity, an index was created with data from the Bertelsmann Stiftung's Transformation Index (BTI) and the

World Bank Country Policy and Institutional Assessment (CPIA) for the years associated with the WBES in each respective country. Because the BTI is only produced for even years, for countries with odd-year Enterprise Surveys, the previous year BTI data was used and matched. For political freedom data, the Freedom House Global Freedoms scores for respective countries and years (of their WBES) were utilized.

Firm-level annual employment growth (empGRS), the main dependent variable, is calculated by using historical recall data regarding the number of full-time permanent employees in the WBES. The WBES in Tanzania (2013) uses three growth periods (four-year period) while all other countries in the sample use two growth periods (three-year period). Employment growth is calculated using the following geometric formula: $y_1 = \left\lfloor exp\left(\frac{ln(p_n/p_0)}{n-1}\right) - 1 \right\rfloor \times 100$ in which p_n and p_0 represent the final and initial observations of total full-time permanent employees respectively in the time period. $n-1$ represents the number of growth years. $n-1$ equals three for Tanzania and two for all other countries in the sample (Udomsaph 2019). Once this is calculated, standard deviation outliers are excluded from the sample. Standard deviation outliers are defined as observations with employment growth rates greater/less than three times the standard deviation plus/minus the mean of each respective peer group. Peer groups are formed by a dummy variable of high state capacity (which will be explained later), country, initial firm size category, and sector (manufacturing or services).

The concept of state capacity and how to best measure it is widely debated in political science literature (Cingolani 2018; Hanson & Sigman 2013). In a broad sense, state capacity denotes a state's ability to create and enforce policy goals and its ability to elicit compliance from its citizens (Aguilera et al. 2021). Some scholars insist that the provision of public services is a component of state capacity, but for the purpose of this paper, such a component is excluded

because one can argue that state capacity involves the *ability* to provide services and not the *decision* to provide them.

In this paper, the main differentiating independent variable, high state capacity, is a dummy variable created using the country-level mean of the Brodo State Capacity Index, a state capacity index created for the purposes of this analysis. The Brodo State Capacity Index is created using nine country-level variables from the BTI and one country-level variable from the CPIA. The nine BTI variables are: monopoly on the use of force, state identity, basic administration, property rights, implementation, policy learning, efficient use of assets, policy coordination, and cleavage/conflict management. The BTI assigns a score of 1-10 to each of these variables for each country, which were then assigned for the year of or year prior to the WBES for each country in the sample. The CPIA scores the variable 'efficiency of revenue mobilization' on a scale from 1-6 for each country and year. In order to match the scale used by the BTI, these scores were multiplied by 10/6 to give them a score out of 10. These scores were then assigned to the country/year associated with the WBES sample. To create the index, these ten scores were summed and divided by 10 for each country.

As demonstrated by Figure 1, the Brodo State Capacity Index has a range of 2.7-7.37 for the sample of 34 sub-Saharan African countries. To create the high state capacity dummy variable, a value of 1 is assigned to countries with a state capacity score greater than 5.385 (the country-level median), while a value of 0 is assigned to countries with a state capacity score less than 5.385. Figure 2 displays the state capacity scores of the sample countries on a map, while Figure 3 displays a map distinguishing between high state capacity countries and low state capacity countries in the sample.

The other main independent variable, government ownership, is a dummy variable created by assigning a value of 1 to firms with any level of government-ownership (greater than 0%) and assigning a value of 0 to firms with no level of government-ownership (equal to 0%). As shown in Table 1, government-owned firms represent 3.02% of the sample and comprise a higher proportion of the low state capacity sample (4.61%) than the high state capacity sample (1.11%).

A variety of firm-level control variables and a range of fixed effects (year, industry, and city) are also included in the regression analysis. The controls include three categorical variables: initial firm size, financial depth, and firm age. Initial firm size describes the number of full-time permanent employees at the end of three fiscal years ago and contains three categories: small (less than 20 employees), medium (20 to 99 employees), and large (100 or more employees) (Udomsaph 2019). Financial depth is an index of five categories. One point is added for each financial instrument that firms possess, resulting in a categorical variable with a range of 0 to 5. The five financial instruments are: overdraft facility, line of credit or loan, bank financing for working capital, bank financing for investment, and issuance of stock (Udomsaph 2019). Firm age describes the number of years the firm has been in business and contains three categories: young (0-5 years old), midage (6-10 years old), and old (11 or more years old). The significant obstacle perception variables are dummy variables constructed with their respective categorical variables in the WBES. A value of 1 is assigned to each dummy obstacle variable if firms reported the potential obstacle in question to be a very severe obstacle or a major obstacle, while a value of 0 is assigned to each dummy obstacle variable if firms reported the potential obstacle in question to be a moderate obstacle, minor obstacle, or no obstacle at all. To create the exporter dummy variable, a value of 1 is assigned to firms with any nonzero percentage of direct export

sales, while a value of 0 is assigned to firms with no direct export sales. To create the foreign ownership dummy variable, a value of 1 is assigned to firms with at least 10 percent of equity owned by foreign individuals or companies, while a value of 0 is assigned to firms with less than 10 percent of equity owned by foreign individuals or companies (Udomsaph 2019). To create the female owner dummy variable, a value of 1 is assigned to firms who report at least one female owner, while a value of 0 is assigned to firms who do not report having at least one female owner. To create the informal competition dummy variable, a value of 1 is assigned to firms who compete against unregistered or informal firms, while a value of 0 is assigned to firms who do not compete against unregistered or informal firms. To create the one owner dummy variable, a value of 1 is assigned to firms whose largest owner owns 100% of the firm, while a value of 0 is assigned to firms whose largest owner owns between 1% and 99% of the firm. To create the publicly-traded shares dummy variable, a value of 1 is assigned to firms who have publicly-traded shares, while a value of 0 is assigned to firms who do not have publicly-traded shares.

The means of all firm-level variables included in the sample are shown in Table 1, which presents descriptive statistics. In addition to showing the means of these firm-level variables across the sample at large, the means are also shown separately for high state capacity countries and low state capacity countries in the sample since the regression analysis similarly divides the two groups. Figures 4 and 5 display crosstabs of the relative sizes of government-owned firms and non-government-owned firms (on the same 1-3/small-large scale as initial firm size) in high state capacity countries and low state capacity countries respectively. While firm size is not controlled for in the regression models (initial firm size is controlled), the means are presented to inform the reader about the sample.

In a basic analysis of two separate t-tests comparing firm-level employment growth of government-owned firms and non-government-owned firms in countries with high state capacity and in countries with low state capacity, the results display significant relationships. In Table 2, the results demonstrate that in countries with high state capacity, government-owned firms have significantly lower employment growth rates than non-government-owned firms. Table 3 demonstrates that in countries with low state capacity, government-owned firms have significantly higher employment growth rates than non-government-owned firms. These two statistically significant relationships thus demand further investigation by running multiple regressions with a range of controls in order to evaluate if such relationships continue to possess statistical significance.

Regression Analysis

Table 4 depicts the baseline regression, which investigates the effect of high and low state capacity on firm-level employment growth. The results show that in countries with high state capacity, government-owned firms have significantly lower employment growth rates than non-government-owned firms ($p < 0.01$), whereas in countries with low state capacity, government-owned firms have significantly higher employment growth rates than non-government-owned firms ($p < 0.05$).

In Column 2 of Table 4, the coefficient of -6.351 for government-owned firms indicates that in countries with high state capacity, government-owned firms grow employment 6.351 percentage points slower than non-government-owned firms, with statistical significance at the 1% level. In Column 3 of Table 4, the coefficient of 6.883 for government-owned firms indicates that in countries with low state capacity, government-owned firms grow employment 6.883 percentage points faster than non-government-owned firms, with statistical significance at the

5% level. These results demand further investigation as to why government-owned firms have lower employment growth rates than non-government-owned firms in countries with high state capacity but have higher employment growth rates than non-government-owned firms in countries with low state capacity. In order to more deeply investigate how state capacity produces opposite effects on the employment growth of government-owned firms compared to non-government-owned firms, Tables 5-8 separate out components of the Brodo State Capacity Index. By running separate regressions that compare between high and low groups of four components of the Brodo State Capacity Index, it may be possible to decipher which aspects of state capacity drive the results seen in Table 4.

Table 5 investigates the effect of high and low policy capacity on firm-level employment growth. The policy capacity component is created by taking the average of a combination of four of the variables that comprise the Brodo State Capacity Index: implementation, policy learning, policy coordination, and efficient use of assets. To create high and low dummy variables for policy capacity, a value of 1 is assigned to countries with a policy capacity score greater than the country-level mean (4.382), while a value of 0 is assigned to countries with a policy capacity score less than the country level mean. The results of the regression show that in countries with high policy capacity, government-owned firms have significantly lower employment growth rates than non-government-owned firms ($p < 0.05$), whereas in countries with low policy capacity, government-owned firms have significantly higher employment growth rates than non-government-owned firms ($p < 0.1$). These results display the same relationships as the baseline regression, although the significances of government ownership decrease both in countries with high policy capacity and in countries with low policy capacity.

In Column 2 of Table 5, the coefficient of -4.303 for government-owned firms indicates that in countries with high policy capacity, government-owned firms grow employment 4.303 percentage points slower than non-government-owned firms, with statistical significance at the 5% level. In Column 3 of Table 5, the coefficient of 6.471 for government-owned firms indicates that in countries with low policy capacity, government-owned firms grow employment 6.471 percentage points faster than non-government-owned firms, with statistical significance at the 10% level. The similar results to the baseline regression demonstrate that policy capacity plays a role in driving the statistical significance of government ownership on firm-level employment growth, but the decrease in significance for both values of the policy capacity dummy variable in comparison to the significances for both values of the state capacity dummy variable highlights that policy capacity does not explain the relationship as significantly as the Brodo State Capacity Index as a whole, and thus may not be as relevant of a factor. Thus, it is important to examine the other components of the Brodo State Capacity Index in order to see what other aspects of state capacity are involved in driving the relationship between government ownership and firm-level employment growth.

Table 6 investigates the effect of high and low stateness on firm-level employment growth. The stateness component is created by taking the average of a combination of four of the variables that comprise the Brodo State Capacity Index: monopoly on the use of force, state identity, basic administration, and efficiency of revenue mobilization. To create high and low dummy variables for stateness, a value of 1 is assigned to countries with a stateness score greater than the country-level mean (6.281), while a value of 0 is assigned to countries with a stateness score less than the country level mean. The results of the regression show that in countries with high stateness, government-owned firms have significantly lower employment growth rates than

non-government-owned firms ($p < 0.05$), whereas in countries with low stateness, government-owned firms have significantly higher employment growth rates than non-government-owned firms ($p < 0.05$). These results display the same relationships as the baseline regression, although the significance of government ownership decreases in countries with high stateness.

In Column 2 of Table 6, the coefficient of -4.941 for government-owned firms indicates that in countries with high stateness, government-owned firms grow employment 4.941 percentage points slower than non-government-owned firms, with statistical significance at the 5% level. In Column 3 of Table 6, the coefficient of 8.121 for government-owned firms indicates that in countries with low stateness, government-owned firms grow employment 8.121 percentage points faster than non-government-owned firms, with statistical significance at the 5% level. The similar results to the baseline regression demonstrate that stateness plays a role in driving the statistical significance of government ownership on firm-level employment growth. However, the decrease in significance of the coefficient of government ownership in high stateness countries demonstrates that this component does not as adequately explain the driving force behind comparatively lower employment growth rates for government-owned firms in those countries.

Table 7 investigates the effect of high and low property rights on firm-level employment growth. The property rights component uses the value of the property rights variable in the Brodo State Capacity Index. To create high and low dummy variables for property rights, a value of 1 is assigned to countries with a property rights score greater than the country-level mean (4.706), while a value of 0 is assigned to countries with a property rights score less than the country level mean. The results of the regression show that in countries with high property rights, government-owned firms have significantly higher employment growth rates than non-

government-owned firms ($p < 0.1$), whereas in countries with low property rights, there is no significant difference in employment growth rates between government-owned firms and non-government-owned firms. These results present starkly different relationships than the baseline regression.

In Column 2 of Table 7, the coefficient of 5.355 for government-owned firms indicates that in countries with high property rights, government-owned firms grow employment 5.355 percentage points faster than non-government-owned firms, with statistical significance at the 10% level. In Column 3 of Table 7, the coefficient of -3.275 for government-owned firms is statistically insignificant. In this regression, there is no significant difference in employment growth rates between government-owned firms and non-government-owned firms in countries with low property rights, whereas in the baseline regression, there is statistical significance for the low group. Further, the significance of the government-owned firms coefficient in the high property rights group possesses a coefficient in the opposite direction of the baseline regression. Thus, it is evident that property rights are not involved in driving the relationship of state capacity on the disparate employment growth rates of government-owned firms and non-government-owned firms.

Table 8 investigates the effect of high and low cleavage/conflict management on firm-level employment growth. The cleavage/conflict management component uses the value of the cleavage/conflict management variable in the Brodo State Capacity Index. To create high and low dummy variables for cleavage/conflict management, a value of 1 is assigned to countries with a cleavage/conflict management score greater than the country-level mean (4.794), while a value of 0 is assigned to countries with a cleavage/conflict management score less than the country level mean. The results of the regression show that in countries with high

cleavage/conflict management, government-owned firms have significantly lower employment growth rates than non-government-owned firms ($p < 0.05$), whereas in countries with low cleavage/conflict management, government-owned firms have significantly higher employment growth rates than non-government-owned firms ($p < 0.05$). These results display the same relationships as the baseline regression, although the significance of government ownership decreases in countries with high cleavage/conflict management.

In Column 2 of Table 8, the coefficient of -4.331 for government-owned firms indicates that in countries with high cleavage/conflict management, government-owned firms grow employment 4.331 percentage points slower than non-government-owned firms, with statistical significance at the 5% level. In Column 3 of Table 8, the coefficient of 7.644 for government-owned firms indicates that in countries with low cleavage/conflict management, government-owned firms grow employment 7.644 percentage points faster than non-government-owned firms, with statistical significance at the 5% level. The similar results to the baseline regression demonstrate that cleavage/conflict management plays a role in driving the statistical significance of government ownership on firm-level employment growth. However, the decrease in significance of the coefficient of government ownership in high cleavage/conflict management countries demonstrates that this component does not as adequately explain the driving force behind comparatively lower employment growth for government-owned firms in those countries.

Discussion of Results

The multiple regression analysis clearly shows that in countries with low state capacity, government-owned firms have significantly higher employment growth rates than non-government-owned firms, whereas in countries with high state capacity, government-owned firms have significantly lower employment growth rates than non-government-owned firms. I

hypothesize that the comparative employment growth relationship between government-owned firms and non-government-owned firms in low state capacity countries stems from the use of employment in government-owned firms as a form of patronage. This hypothesis is supported by the various state capacity component regressions. Out of the four component regressions, two maintained the same level of significance as the baseline regression in the low group: stateness and cleavage/conflict management (see Table 6 and Table 8). As mentioned earlier, state capacity denotes a state's ability to create and enforce policy goals as well as its ability to elicit compliance from its citizens. Stateness and cleavage/conflict management fall under the 'elicit compliance' aspect, which aligns with the patronage hypothesis. In countries with a lesser ability to elicit compliance from their citizens, patronage networks are a key method to securing support for the government since it lacks the capacity to assert its legitimacy and power in other ways. As a result of these patronage networks, low state capacity governments likely continually offer jobs to secure support—even if the employment is not financially appropriate or necessary for the firm—thus driving the comparatively higher employment growth rates for government-owned firms in those countries. Additionally, non-government-owned firms in low state capacity countries likely face significant economic obstacles to employment growth, thus further separating the employment growth rates of government-owned firms and non-government-owned firms. However, the mechanisms regarding the impact of low state capacity on non-government-owned firms demand further investigation.

The patronage hypothesis for low state capacity countries is further supported by Table 9, which separates countries according to state capacity and political freedoms. The political freedom dummy variable is 'not free' for countries that the Freedom House Global Freedoms index denotes as 'not free' in the year of their respective WBES, and 'partially free/free' for

countries that the Freedom House Global Freedoms index denotes as ‘partially free’ or ‘free’ in the year of their respective WBES. Table 9 shows that the government ownership coefficient is only significant for low state capacity countries when their political freedom dummy variable is ‘partially free/free’. These results further support the patronage hypothesis because patronage networks are far more important for governments to secure when they have to hold elections and cannot engage in political repression.

As for the comparative employment growth relationship between government-owned firms and non-government-owned firms in high state capacity countries, the regression results contained in this paper provide less clear causal mechanisms. However, I hypothesize a few potential explanations. First, in the absence of the reliance on government-owned firms to support patronage networks, governments in high state capacity countries are less incentivized to artificially inflate employment growth in these firms. In addition, government-owned firms in high state capacity countries are also disincentivized to act as economically responsible as non-government-owned firms because they recognize that they will likely be supported by the government regardless of their economic performance (i.e., zombie firms). On the other hand, non-government-owned firms do not receive such state support and thus likely engage in better economic practices that allow them to grow employment faster in comparison to government-owned firms. These differences in employment growth rates between government-owned firms and non-government-owned firms in countries with high state capacity demand further investigation that extend beyond the scope of this paper.

Research Recommendations

Given the available datasets and analyses, this paper has uncovered significant relationships regarding the role of state capacity in driving disparate employment growth rates

between government-owned firms and non-government-owned firms. In addition, although this paper has hypothesized some causal mechanisms behind such relationships, these hypotheses require further investigation. In order to validate the hypotheses put forth, scholars should attempt to evaluate the use of employment in government-owned-firms as a form of patronage in low state capacity countries, and also investigate the existence of 'zombie' government-owned firms in high state capacity countries by evaluating whether such firms possess any incentives to grow employment and act economically responsible amid consistent government financial support.

Qualifications to Analysis

One possible drawback and critique of this regression analysis is the Brodo State Capacity Index itself. In an attempt to measure state capacity, it is possible that the index overbiases some measures of state capacity over others. While the index attempts to balance out measures of administrative and coercive capacity, there is only one measure (out of the 10) that measures extractive capacity. Although this may have biased the baseline results, the various regressions that investigated the effects of specific components of the index demonstrate that the relationships discovered are not entirely flawed. Further, much of the index's components are adapted from the Bertelsmann Stiftung's Transformation Index (BTI) which contains potentially subjective questions—or at least variables that cannot be objectively measured numerically—thus potentially uncovering another source of bias in the data.

Another qualification to this analysis is the potential for sample bias deriving from the WBES. For example, this research would benefit from the surveys including more government-owned firms as well as firms involved in the extractive/mining sector given the sector's high potential for government-ownership and patronage networks. Although the analyses in this paper

included industry fixed effects, the research would substantially improve if it possessed data on a wider variety of firms.

Conclusion

The empirical results in this paper clearly demonstrate an effect of state capacity on the comparative employment growth rates of government-owned firms and non-government-owned firms. Such results represent an addition to the literature on the overlapping effects of state capitalism and political institutions/state capacity. The baseline regression analysis reveals that in countries with high state capacity, government-owned firms have significantly lower employment growth rates than non-government-owned firms, whereas in countries with low state capacity, government-owned firms have significantly higher employment growth rates than non-government-owned firms.

By separating out components of state capacity, this paper highlights that in countries with low state capacity, the driving force behind the comparatively higher employment growth rates of government-owned firms is the inability of governments to elicit compliance from their citizens. This paper hypothesizes that the inability to elicit compliance from citizens—in countries that are partially free or free—leads to low state capacity countries using government-owned firms to provide employment as a form of patronage. In order to further investigate the patronage hypothesis, additional research is warranted. In addition, this paper hypothesizes that in countries with high state capacity, governments lack the incentive to use employment in government-owned firms as a form of patronage, while government-owned firms lack the incentive to act economically responsible. Such lack of incentives explains the lower employment growth rates of government-owned firms as compared to non-government-owned

firms in high state capacity countries. This hypothesis also warrants further research in order to assess its validity.

Overall, this paper has uncovered relationships that are crucial to the study of the political economy of development. By adding to the existing literature of state capitalism and political institutions, this paper has demonstrated that state capacity plays a significant role in conditioning the comparative employment growth rates of government-owned firms and non-government-owned firms in developing countries. However, in order to confirm the political dynamics that drive these economic relationships, further research on the topic is necessary.

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Figure 1: Brodo State Capacity Index Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
scindex	34	5.215294	1.083357	2.7	7.37

Figure 2: Brodo State Capacity Index sub-Saharan Africa Map (Interval)

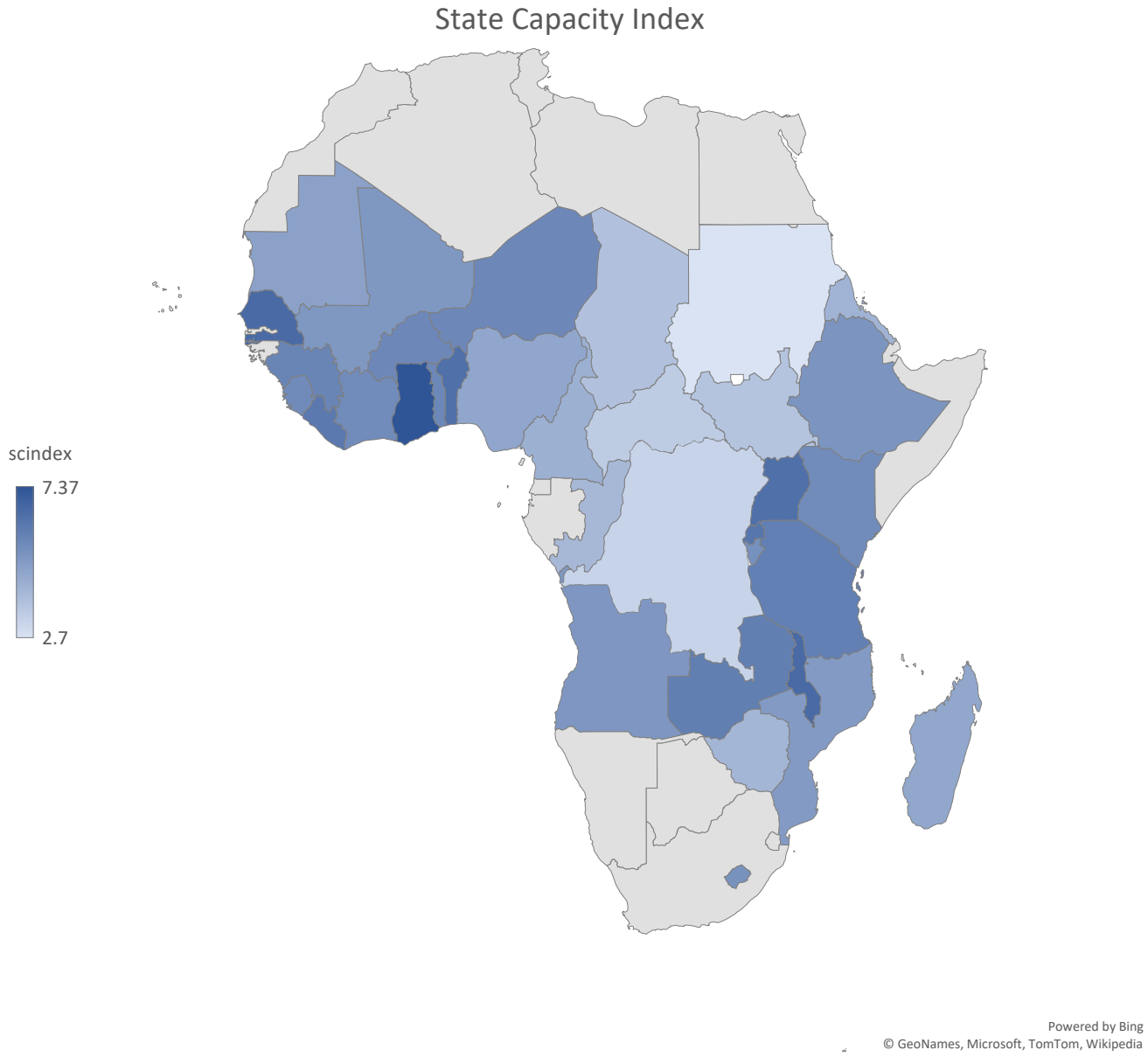

Figure 3: Brodo State Capacity Index sub-Saharan Africa Map (Dummy)

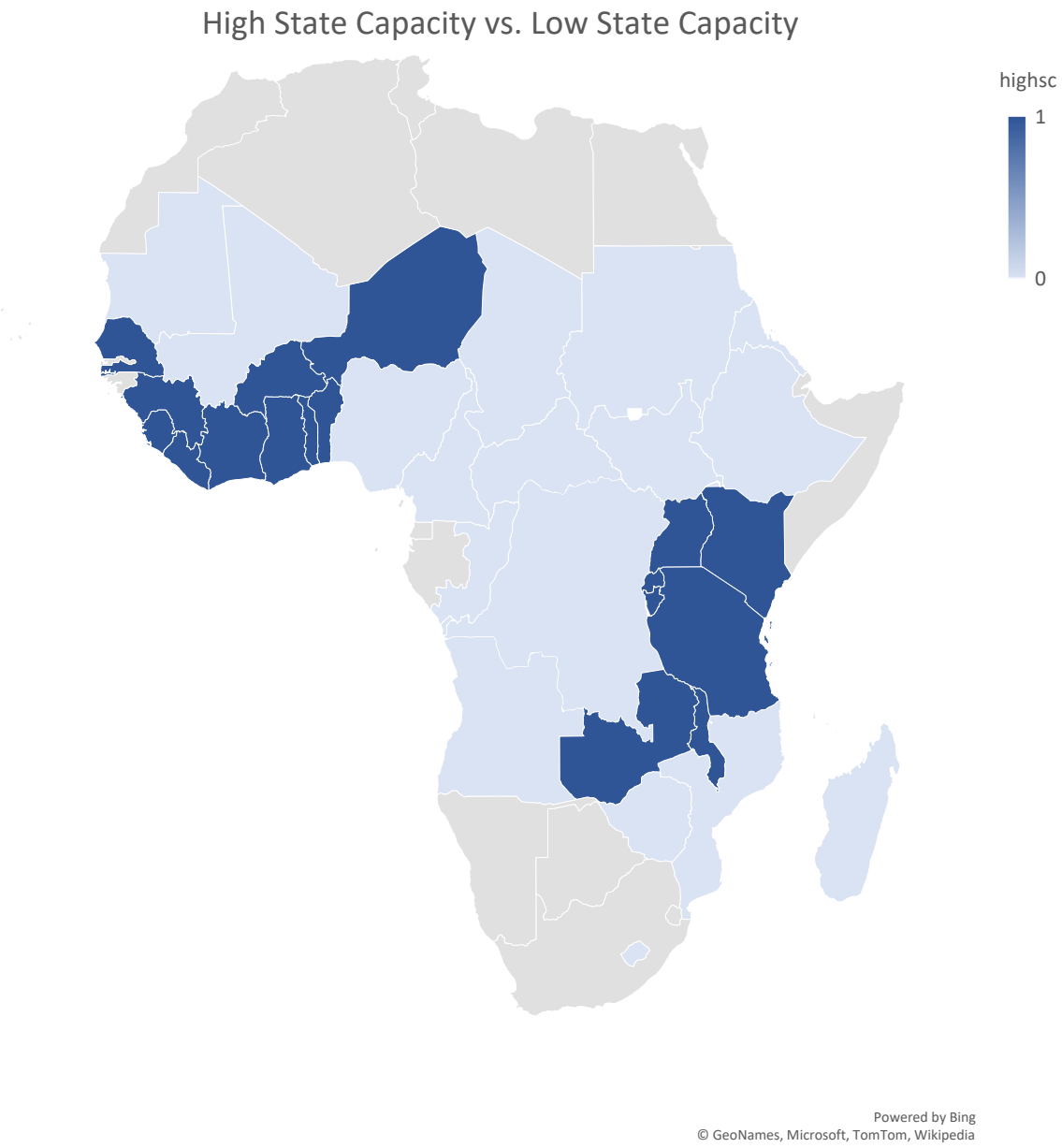

Figure 4: Firm Size of Government-Owned/Non-Government-Owned Firms (High State Capacity)

gov_ow	N	mean
0	6843	1.506649
1	76	2.381579
Total	6919	1.51626

Figure 5: Firm Size of Government-Owned/Non-Government-Owned Firms (Low State Capacity)

gov_ow	N	mean
0	8192	1.447266
1	407	1.660934
Total	8599	1.457379

Table 1: Descriptive Statistics

	Pooled		highsc==1		highsc==0	
Variable	Obs	Mean	Obs	Mean	Obs	Mean
Employment Growth	13,718	7.78	6,214	6.51	7,504	8.83
		(-26.24)		(-18.36)		(-31.26)
Initial Size: Small (less than 20 employees)	13,718	64.38	6,214	62.41	7,504	66.02
Initial Size: Medium (20-99 employees)	13,718	25.94	6,214	27.33	7,504	24.80
Initial Size: Large (100 or more employees)	13,718	9.67	6,214	10.27	7,504	9.18
Exporter	13,267	12.87	6,066	12.69	7,201	13.03
Foreign Ownership	13,459	16.56	6,121	16.42	7,338	16.68
Financial Depth						
0 Financial Instruments	13,665	57.12	6,188	49.94	7,477	63.07
1 Financial Instrument	13,665	21.46	6,188	20.93	7,477	21.91
2 Financial Instruments	13,665	10.75	6,188	13.20	7,477	8.72
3 Financial Instruments	13,665	7.33	6,188	10.97	7,477	4.31
4 Financial Instruments	13,665	2.91	6,188	4.22	7,477	1.82
5 Financial Instruments	13,665	0.43	6,188	0.74	7,477	0.17
Government Ownership	13,479	3.02	6,127	1.11	7,352	4.61
Female Owner (at least one)	12,262	27.52	5,795	30.89	6,467	24.49
Significant Obstacle: Business Licensing and Permits	13,272	16.06	6,025	16.33	7,247	15.84
Significant Obstacle: Corruption	13,214	39.51	6,017	35.28	7,197	43.05
Significant Obstacle: Labor Regulations	13,496	10.49	6,137	11.67	7,359	9.51
Significant Obstacle: Transport	13,362	23.03	6,112	24.17	7,250	22.07
Significant Obstacle: Tax Rates	13,495	34.07	6,119	38.63	7,376	30.29
Significant Obstacle: Courts	12,449	14.39	5,736	17.15	6,713	12.02
Significant Obstacle: Tax Administrations	13,452	27.95	6,127	29.13	7,325	26.96
Significant Obstacle: Customs and Trade Regulations	12,818	23.61	5,928	25.13	6,890	22.29
Significant Obstacle: Electricity Operations	13,633	42.84	6,170	44.10	7,463	41.79
Informal Competition Present	13,086	65.08	5,909	68.56	7,177	62.23
One Owner	13,156	66.46	6,022	62.19	7,134	70.06
Publicly-Traded Shares	13,317	5.77	6,082	6.91	7,235	4.81
Young Firm (0-5 years old)	13,423	12.31	6,112	10.72	7,311	13.65
Midage Firm (6-10 years old)	13,423	25.35	6,112	24.66	7,311	25.93
Old Firm (more than 10 years old)	13,423	62.33	6,112	64.63	7,311	60.42

The standard deviation of employment growth is displayed in parentheses.

Table 2: T-Test of Employment Growth by Government Ownership (High State Capacity Sample)

Two-sample t test with equal variances

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	6,059	6.623024	.2357149	18.34794	6.16094	7.085109
1	68	-.6140075	1.933053	15.94036	-4.472397	3.244382
combined	6,127	6.542705	.2342698	18.33751	6.083454	7.001956
diff		7.237032	2.234463		2.856699	11.61736

diff = mean(0) - mean(1) t = 3.2388
Ho: diff = 0 degrees of freedom = 6125

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(T < t) = 0.9994 Pr(|T| > |t|) = 0.0012 Pr(T > t) = 0.0006

Table 3: T-Test of Employment Growth by Government Ownership (Low State Capacity Sample)

Two-sample t test with equal variances

Group	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf.	Interval]
0	7,013	8.181288	.3561422	29.82465	7.483142	8.879434
1	339	16.74205	2.384172	43.89727	12.05237	21.43174
combined	7,352	8.576024	.35763	30.66456	7.874967	9.277082
diff		-8.560767	1.702439		-11.89803	-5.223499

diff = mean(0) - mean(1) t = -5.0285
Ho: diff = 0 degrees of freedom = 7350

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(T < t) = 0.0000 Pr(|T| > |t|) = 0.0000 Pr(T > t) = 1.0000

Table 4: Employment Growth and State Capacity

Dependent Variable: Employment (Geometric) Growth Rate	(1) Pooled	(2) High SC	(3) Low SC
Initial Size: Medium (20-99 employees)	-8.327***	-4.974***	-11.314***
	(0.585)	(0.657)	(0.949)
Initial Size: Large (100 or more employees)	-8.665***	-5.674***	-10.879***
	(0.825)	(1.010)	(1.266)
Exporter	0.720	0.203	0.825
	(0.859)	(0.807)	(1.492)
Foreign Ownership	1.031	0.711	0.563
	(0.722)	(0.793)	(1.221)
1 Financial Instrument	0.810	0.386	1.014
	(0.666)	(0.685)	(1.085)
2 Financial Instruments	0.339	-0.456	1.301
	(0.872)	(0.850)	(1.704)
3 Financial Instruments	1.521	0.822	1.752
	(0.955)	(0.921)	(2.328)
4 Financial Instruments	1.398	3.161**	-4.745*
	(1.259)	(1.271)	(2.754)
5 Financial Instruments	4.966*	5.350	5.511
	(2.885)	(3.472)	(4.043)
Government Ownership	3.913	-6.351***	6.883**
	(2.572)	(2.443)	(3.201)
Female Owner (at least one)	0.236	-1.559**	2.333*
	(0.675)	(0.607)	(1.275)
Signficant Obstacle: Business Licensing and Permits	0.895	0.849	0.629
	(0.754)	(0.818)	(1.234)
Signficant Obstacle: Corruption	-1.037	-0.607	-1.371
	(0.686)	(0.681)	(1.085)
Significant Obstacle: Labor Regulations	0.214	0.268	0.465
	(0.902)	(0.973)	(1.528)
Significant Obstacle: Transport	0.021	-0.379	0.283
	(0.706)	(0.728)	(1.197)
Significant Obstacle: Tax Rates	-1.528**	-0.793	-2.277**
	(0.618)	(0.667)	(1.065)
Significant Obstacle: Courts	-0.923	-1.240	-0.588
	(0.742)	(0.829)	(1.301)
Significant Obstacle: Tax Administrations	0.087	-0.361	0.406
	(0.660)	(0.713)	(1.113)
Significant Obstacle: Customs and Trade Regulations	2.003***	0.985	2.914**
	(0.712)	(0.736)	(1.204)
Significant Obstacle: Electricity Operations	0.749	-0.016	1.019
	(0.652)	(0.597)	(1.120)
Informal Competition Present	-1.241*	-1.033*	-1.179
	(0.668)	(0.622)	(1.118)
One Owner	-0.772	-1.766***	0.334
	(0.647)	(0.669)	(1.148)
Publicly-Traded Shares	-0.481	-0.579	-0.018
	(1.111)	(1.205)	(2.077)
Young Firm (0-5 years old)	6.061***	7.696***	4.762***
	(0.912)	(1.114)	(1.398)
Midage Firm (6-10 years old)	2.275***	2.260***	2.073*
	(0.644)	(0.635)	(1.112)
Observations	9,168	4,399	4,769
Adjusted R-squared	0.100	0.117	0.101

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 5: Employment Growth and Policy Capacity

Dependent Variable: Employment (Geometric) Growth Rate	(1) Pooled	(2) High PC	(3) Low PC
Initial Size: Medium (20-99 employees)	-8.327***	-4.769***	-11.921***
	(0.585)	(0.631)	(1.001)
Initial Size: Large (100 or more employees)	-8.665***	-5.736***	-11.355***
	(0.825)	(0.923)	(1.432)
Exporter	0.720	-0.339	1.335
	(0.859)	(0.762)	(1.621)
Foreign Ownership	1.031	0.558	0.900
	(0.722)	(0.762)	(1.300)
1 Financial Instrument	0.810	0.858	0.535
	(0.666)	(0.657)	(1.186)
2 Financial Instruments	0.339	-0.028	0.561
	(0.872)	(0.808)	(2.002)
3 Financial Instruments	1.521	1.144	1.010
	(0.955)	(0.914)	(2.294)
4 Financial Instruments	1.398	2.875**	-3.289
	(1.259)	(1.245)	(2.835)
5 Financial Instruments	4.966*	5.504	4.737
	(2.885)	(3.486)	(4.038)
Government Ownership	3.913	-4.303**	6.471*
	(2.572)	(2.024)	(3.316)
Female Owner (at least one)	0.236	-1.106*	2.025
	(0.675)	(0.588)	(1.365)
Signficant Obstacle: Business Licensing and Permits	0.895	0.651	0.765
	(0.754)	(0.797)	(1.279)
Signficant Obstacle: Corruption	-1.037	-0.763	-1.327
	(0.686)	(0.657)	(1.131)
Significant Obstacle: Labor Regulations	0.214	0.571	-0.087
	(0.902)	(0.934)	(1.630)
Significant Obstacle: Transport	0.021	-0.446	0.448
	(0.706)	(0.712)	(1.267)
Significant Obstacle: Tax Rates	-1.528**	-1.069*	-2.009*
	(0.618)	(0.648)	(1.102)
Significant Obstacle: Courts	-0.923	-1.086	-0.828
	(0.742)	(0.809)	(1.356)
Significant Obstacle: Tax Administrations	0.087	-0.738	0.995
	(0.660)	(0.700)	(1.158)
Significant Obstacle: Customs and Trade Regulations	2.003***	1.634**	2.410*
	(0.712)	(0.712)	(1.267)
Significant Obstacle: Electricity Operations	0.749	0.172	0.936
	(0.652)	(0.570)	(1.217)
Informal Competition Present	-1.241*	-1.084*	-1.138
	(0.668)	(0.600)	(1.192)
One Owner	-0.772	-1.207*	-0.183
	(0.647)	(0.636)	(1.245)
Publicly-Traded Shares	-0.481	0.396	-1.066
	(1.111)	(1.185)	(2.092)
Young Firm (0-5 years old)	6.061***	7.269***	4.879***
	(0.912)	(1.087)	(1.442)
Midage Firm (6-10 years old)	2.275***	2.588***	1.564
	(0.644)	(0.610)	(1.216)
Observations	9,168	4,766	4,402
Adjusted R-squared	0.100	0.112	0.104

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 6: Employment Growth and Stateness

Dependent Variable: Employment (Geometric) Growth Rate	(1) Pooled	(2) High ST	(3) Low ST
Initial Size: Medium (20-99 employees)	-8.327***	-5.232***	-12.529***
	(0.585)	(0.589)	(1.164)
Initial Size: Large (100 or more employees)	-8.665***	-5.285***	-14.156***
	(0.825)	(0.839)	(1.797)
Exporter	0.720	0.277	-0.017
	(0.859)	(0.728)	(1.947)
Foreign Ownership	1.031	0.589	0.477
	(0.722)	(0.687)	(1.631)
1 Financial Instrument	0.810	0.355	1.054
	(0.666)	(0.597)	(1.405)
2 Financial Instruments	0.339	-0.160	-0.048
	(0.872)	(0.766)	(2.382)
3 Financial Instruments	1.521	1.279	0.168
	(0.955)	(0.886)	(2.620)
4 Financial Instruments	1.398	3.006**	-4.475
	(1.259)	(1.226)	(3.133)
5 Financial Instruments	4.966*	7.027**	-2.016
	(2.885)	(3.088)	(4.989)
Government Ownership	3.913	-4.941**	8.121**
	(2.572)	(1.931)	(3.545)
Female Owner (at least one)	0.236	-0.831	2.689
	(0.675)	(0.529)	(1.852)
Signficant Obstacle: Business Licensing and Permits	0.895	0.642	1.250
	(0.754)	(0.755)	(1.417)
Signficant Obstacle: Corruption	-1.037	-1.276**	-0.847
	(0.686)	(0.597)	(1.316)
Significant Obstacle: Labor Regulations	0.214	-0.661	1.305
	(0.902)	(0.905)	(1.773)
Significant Obstacle: Transport	0.021	-0.287	0.395
	(0.706)	(0.663)	(1.445)
Significant Obstacle: Tax Rates	-1.528**	-1.199**	-2.034
	(0.618)	(0.608)	(1.245)
Significant Obstacle: Courts	-0.923	-0.477	-1.748
	(0.742)	(0.795)	(1.446)
Significant Obstacle: Tax Administrations	0.087	-0.243	0.820
	(0.660)	(0.677)	(1.295)
Significant Obstacle: Customs and Trade Regulations	2.003***	1.282*	2.795**
	(0.712)	(0.689)	(1.420)
Significant Obstacle: Electricity Operations	0.749	0.597	0.357
	(0.652)	(0.536)	(1.403)
Informal Competition Present	-1.241*	-0.981*	-1.201
	(0.668)	(0.542)	(1.443)
One Owner	-0.772	-0.924	-0.152
	(0.647)	(0.583)	(1.664)
Publicly-Traded Shares	-0.481	-0.474	1.793
	(1.111)	(1.128)	(2.341)
Young Firm (0-5 years old)	6.061***	7.557***	4.249**
	(0.912)	(0.963)	(1.776)
Midage Firm (6-10 years old)	2.275***	2.733***	1.370
	(0.644)	(0.588)	(1.365)
Observations	9,168	5,518	3,650
Adjusted R-squared	0.100	0.133	0.083

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 7: Employment Growth and Property Rights

Dependent Variable: Employment (Geometric) Growth Rate	(1) Pooled	(2) High PR	(3) Low PR
Initial Size: Medium (20-99 employees)	-8.327***	-10.103***	-4.535***
	(0.585)	(0.795)	(0.689)
Initial Size: Large (100 or more employees)	-8.665***	-10.575***	-4.797***
	(0.825)	(1.134)	(0.994)
Exporter	0.720	1.174	-0.563
	(0.859)	(1.155)	(0.966)
Foreign Ownership	1.031	0.897	1.284
	(0.722)	(0.967)	(0.926)
1 Financial Instrument	0.810	0.333	1.808**
	(0.666)	(0.926)	(0.757)
2 Financial Instruments	0.339	-0.250	1.711
	(0.872)	(1.163)	(1.119)
3 Financial Instruments	1.521	1.187	2.719**
	(0.955)	(1.213)	(1.246)
4 Financial Instruments	1.398	0.827	4.290**
	(1.259)	(1.530)	(2.056)
5 Financial Instruments	4.966*	5.650	7.540***
	(2.885)	(3.746)	(2.678)
Government Ownership	3.913	5.355*	-3.275
	(2.572)	(3.157)	(2.033)
Female Owner (at least one)	0.236	-0.320	1.300*
	(0.675)	(0.906)	(0.778)
Signficant Obstacle: Business Licensing and Permits	0.895	1.151	0.578
	(0.754)	(1.069)	(0.871)
Signficant Obstacle: Corruption	-1.037	-1.090	-0.977
	(0.686)	(0.946)	(0.731)
Significant Obstacle: Labor Regulations	0.214	0.060	0.853
	(0.902)	(1.235)	(1.081)
Significant Obstacle: Transport	0.021	-0.119	0.521
	(0.706)	(0.963)	(0.787)
Significant Obstacle: Tax Rates	-1.528**	-1.502*	-1.480*
	(0.618)	(0.856)	(0.783)
Significant Obstacle: Courts	-0.923	-1.695*	0.012
	(0.742)	(0.986)	(0.973)
Significant Obstacle: Tax Administrations	0.087	0.443	-0.675
	(0.660)	(0.946)	(0.770)
Significant Obstacle: Customs and Trade Regulations	2.003***	2.341**	1.339*
	(0.712)	(1.042)	(0.754)
Significant Obstacle: Electricity Operations	0.749	0.801	0.508
	(0.652)	(0.859)	(0.759)
Informal Competition Present	-1.241*	-0.946	-1.851**
	(0.668)	(0.886)	(0.749)
One Owner	-0.772	-2.253**	1.948**
	(0.647)	(0.886)	(0.778)
Publicly-Traded Shares	-0.481	-0.144	-1.161
	(1.111)	(1.466)	(1.543)
Young Firm (0-5 years old)	6.061***	7.109***	4.518***
	(0.912)	(1.378)	(0.987)
Midage Firm (6-10 years old)	2.275***	1.826**	2.833***
	(0.644)	(0.896)	(0.703)
Observations	9,168	6,242	2,926
Adjusted R-squared	0.100	0.092	0.159

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8: Employment Growth and Cleavage/Conflict Management

Dependent Variable: Employment (Geometric) Growth Rate	(1) Pooled	(2) High CM	(3) Low CM
Initial Size: Medium (20-99 employees)	-8.327***	-4.791***	-12.341***
	(0.585)	(0.606)	(1.041)
Initial Size: Large (100 or more employees)	-8.665***	-5.530***	-11.800***
	(0.825)	(0.887)	(1.460)
Exporter	0.720	0.725	-0.056
	(0.859)	(0.754)	(1.666)
Foreign Ownership	1.031	0.533	0.412
	(0.722)	(0.731)	(1.381)
1 Financial Instrument	0.810	0.565	0.896
	(0.666)	(0.639)	(1.175)
2 Financial Instruments	0.339	-0.752	1.864
	(0.872)	(0.811)	(1.849)
3 Financial Instruments	1.521	0.942	1.369
	(0.955)	(0.881)	(2.607)
4 Financial Instruments	1.398	2.591**	-4.728
	(1.259)	(1.185)	(3.330)
5 Financial Instruments	4.966*	6.142*	0.699
	(2.885)	(3.259)	(4.693)
Government Ownership	3.913	-4.331**	7.644**
	(2.572)	(1.916)	(3.550)
Female Owner (at least one)	0.236	-1.508***	2.938**
	(0.675)	(0.575)	(1.420)
Signficant Obstacle: Business Licensing and Permits	0.895	1.369*	0.289
	(0.754)	(0.786)	(1.298)
Signficant Obstacle: Corruption	-1.037	-0.939	-1.165
	(0.686)	(0.634)	(1.178)
Significant Obstacle: Labor Regulations	0.214	0.760	-0.118
	(0.902)	(0.954)	(1.562)
Significant Obstacle: Transport	0.021	0.131	-0.091
	(0.706)	(0.701)	(1.263)
Significant Obstacle: Tax Rates	-1.528**	-1.307**	-1.761
	(0.618)	(0.642)	(1.112)
Significant Obstacle: Courts	-0.923	-1.034	-0.850
	(0.742)	(0.812)	(1.342)
Significant Obstacle: Tax Administrations	0.087	-0.808	0.888
	(0.660)	(0.701)	(1.142)
Significant Obstacle: Customs and Trade Regulations	2.003***	0.631	3.203***
	(0.712)	(0.716)	(1.241)
Significant Obstacle: Electricity Operations	0.749	0.673	0.627
	(0.652)	(0.563)	(1.209)
Informal Competition Present	-1.241*	-0.692	-1.471
	(0.668)	(0.573)	(1.250)
One Owner	-0.772	-1.575**	0.348
	(0.647)	(0.625)	(1.294)
Publicly-Traded Shares	-0.481	-0.416	0.617
	(1.111)	(1.274)	(1.868)
Young Firm (0-5 years old)	6.061***	7.943***	3.876**
	(0.912)	(1.009)	(1.575)
Midage Firm (6-10 years old)	2.275***	2.866***	1.620
	(0.644)	(0.611)	(1.195)
Observations	9,168	4,850	4,318
Adjusted R-squared	0.100	0.117	0.101

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 9: Employment Growth and State Capacity/Freedom House Global Freedom Scores

Dependent Variable: Employment (Geometric) Growth Rate	(1)	(2)	(3)	(4)	(5)
	Pooled	Not Free High SC	Not Free Low SC	P-Free/Free High SC	P-Free/Free Low SC
Initial Size: Medium (20-99 employees)	-8.327***	-2.737	-3.587***	-5.213***	-16.188***
	(0.585)	(2.054)	(0.865)	(0.693)	(1.442)
Initial Size: Large (100 or more employees)	-8.665***	-1.998	-4.963***	-6.019***	-15.552***
	(0.825)	(3.675)	(1.282)	(1.064)	(2.005)
Exporter	0.720	-5.843***	-1.054	0.802	1.090
	(0.859)	(2.034)	(1.448)	(0.883)	(2.122)
Foreign Ownership	1.031	0.291	0.841	0.605	-0.051
	(0.722)	(2.819)	(1.273)	(0.828)	(1.881)
1 Financial Instrument	0.810	-0.318	3.250***	0.357	-0.554
	(0.666)	(2.404)	(0.951)	(0.721)	(1.739)
2 Financial Instruments	0.339	-4.177	5.156***	-0.099	-2.041
	(0.872)	(2.842)	(1.543)	(0.904)	(2.828)
3 Financial Instruments	1.521	-2.467	4.680*	0.954	0.196
	(0.955)	(3.203)	(2.581)	(0.967)	(3.191)
4 Financial Instruments	1.398	-2.732	1.194	3.591***	-7.137*
	(1.259)	(5.945)	(3.035)	(1.301)	(3.788)
5 Financial Instruments	4.966*	8.170**	4.588	5.528	7.140
	(2.885)	(4.069)	(5.489)	(3.644)	(5.747)
Government Ownership	3.913	-8.763*	-0.504	-6.136**	7.950**
	(2.572)	(4.792)	(3.514)	(2.758)	(3.533)
Female Owner (at least one)	0.236	3.129	0.749	-1.871***	3.224*
	(0.675)	(2.564)	(1.058)	(0.627)	(1.918)
Signficant Obstacle: Business Licensing and Permits	0.895	-26.088***	0.445	0.922	1.351
	(0.754)	(9.746)	(0.981)	(0.820)	(2.388)
Signficant Obstacle: Corruption	-1.037	10.098**	0.221	-0.612	-2.345
	(0.686)	(3.895)	(0.856)	(0.683)	(1.728)
Significant Obstacle: Labor Regulations	0.214	0.419	0.375	0.150	0.297
	(0.902)	(6.414)	(1.238)	(0.987)	(2.764)
Significant Obstacle: Transport	0.021	2.780	0.683	-0.460	0.783
	(0.706)	(7.765)	(0.955)	(0.733)	(2.095)
Significant Obstacle: Tax Rates	-1.528**	0.639	-0.644	-0.778	-3.544*
	(0.618)	(3.577)	(0.946)	(0.680)	(1.957)
Significant Obstacle: Courts	-0.923	-7.735	0.158	-1.210	-2.799
	(0.742)	(6.347)	(1.097)	(0.830)	(2.649)
Significant Obstacle: Tax Administrations	0.087	-0.400	-0.727	-0.343	2.052
	(0.660)	(4.152)	(0.868)	(0.723)	(2.234)
Significant Obstacle: Customs and Trade Regulations	2.003***	-1.747	1.643*	1.000	4.213*
	(0.712)	(3.974)	(0.882)	(0.747)	(2.409)
Significant Obstacle: Electricity Operations	0.749	6.338	0.223	-0.096	1.303
	(0.652)	(4.726)	(0.922)	(0.605)	(1.739)
Informal Competition Present	-1.241*	-2.690	-1.064	-0.855	-1.070
	(0.668)	(2.151)	(0.993)	(0.650)	(1.598)
One Owner	-0.772	-3.116	3.253***	-1.712**	-2.146
	(0.647)	(2.366)	(0.979)	(0.698)	(1.930)
Publicly-Traded Shares	-0.481		-1.016	-0.501	2.469
	(1.111)		(2.378)	(1.208)	(3.176)
Young Firm (0-5 years old)	6.061***	2.335	3.709***	7.909***	6.396**
	(0.912)	(2.956)	(1.154)	(1.197)	(2.489)
Midage Firm (6-10 years old)	2.275***	0.183	2.640***	2.364***	1.163
	(0.644)	(2.052)	(0.844)	(0.670)	(1.901)
Observations	9,168	280	1,967	4,119	2,802
Adjusted R-squared	0.100	0.041	0.101	0.119	0.110

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1