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## **The persistent institutional effect of liberal colonialism: evidence from China's financial policies**

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### **Abstract**

The effect of liberal colonialism on the allocation of capital persists to this day. As Lange et al. (*Colonialism and development: A comparative analysis of Spanish and British colonies. 2006*) define and suggest, the authors exploit the colonial history of China during 1896-1911 with qualitative evidence to measure liberal colonialism. They document that liberal colonialism promotes the subsequent efficiency of financial policies on capital allocation in 2004 through the quality of economic institutions.

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# 1 Introduction

Over the last decades, numerous studies have investigated the impact of colonialism on the recent development. A number of works analyze the long-term effects of colonialism on economic development (Acemoglu et al., 2001 and 2002; head et al., 2010; Mizuno and Okazawa, 2009) or political development (Lange, 2003; Olsson, 2009). To the best knowledge, this paper offers a first attempt to explore how colonialism affects the allocative efficiency of financial policies. Motivated by the research question, this paper will show that liberal colonialism defined by Lange et al. (2006) creates an institutional comparative advantage this day to promote the efficiency of financial policies on capital allocation. Therefore, we contribute by enhancing the understanding of colonialism and economic institutions.

This paper uses the World Bank Investment Climate Survey undertaken in 2005 for China to investigate the effect of interest with novelty. First, following the approach of Lange et al. (2006), we exploit the history of China's colonialism with qualitative evidence to identify that a bit more than half of surveyed cities experienced liberal colonialism during 1896-1911. This research avoids the limitation of cross-country studies; it explores the colonial power in the same country to control for the impacts of heterogeneity in the political system, culture and other macro factors.

Second, the existing literature does not measure the allocative efficiency of financial policies, but we refer to Wurgler's method (2000) to estimate it by the elasticity of value added on the (positive) change of financial access. Because financial policies should allocate capitals to growing firms, the higher elasticity reflects the better capital allocation of financial policies. In particular, to the best of our knowledge, only the survey captures the information on a firm's financial-access change due to the gov-ernment's financial policies. This may explain why the existing literature does not investigate the allocative efficiency of financial policies.

We follow the methodology of Acemoglu et al. (2008) to explore the persistent effect

of liberal colonialism. First, we conduct the reduced-form estimates to show that financial policies in 2004 have higher efficiency on capital allocation in the cities that are historically controlled by liberal colonists during 1896-1911. Because our proxy for liberal colonialism may include other noise, we further control for confounding factor and find that confounders are insignificantly related to outcome variables. We also conduct the test suggested by Altonji et al. (2005) to reveal that the omitted-variables bias is negligible. These findings jointly indicate that the effect of liberal colonialism on the allocative efficiency of financial policies *tends to*<sup>1</sup> be robust to the potential endogeneity bias.

Second, we conduct instrumental variable (hereafter IV) estimation to test whether liberal colonialism affects the allocative efficiency of financial policy through the quality of economic institutions (hereafter, institutional quality). For one thing, we find that institutional quality instrumented by liberal colonialism is significantly and positively related to the allocative efficiency. For another, we conduct a series of tests to confirm that liberal colonialism has no direct effect on the allocative efficiency except through institutional quality. Our IV estimates document that liberal colonialism during 1896-1911 creates a variation in institutional quality to causally promote the allocative efficiency of financial policies in 2004.

Despite theoretical contribution, this paper offers applications to historically colonized countries. As Wurgler (2000: 188) points out, “a fundamental job of the economy is to allocate capital efficiently.” This paper suggests that most developing countries need to design their financial policies with consideration of their sources of economic institutions. By contrast with the existing literature such as Legal Original Theory (La Porta et al., 1997, 1998 and 2008) using the source of economic institutions to explain the development of the financial sector, this paper shed insight on the allocative efficiency of financial policies.

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<sup>1</sup>If we assume that the liberal colonialism during 1896-1911 is exogenous for the allocative efficiency of financial policies in 2004, we can expect a causal effect of the former on the latter. In fact, we will theoretically justify the assumption in Section 2 and empirically confirm it in later instrumental variable estimations. For the cautiousness, we here use “tends to be” instead of “is.”

The next section introduces the research background and explains our hypothesis. Section 3 introduces data and describes the measurement of variables. Section 4 conducts the reduced-form estimations to investigate the direct effect of liberal colonial-ism, whereas Section 5 conducts IV estimations to examine the indirect effect of in-terest through institutional quality. Section 6 concludes.

## **2 Liberal colonialism as exogenous source of economic institutions in China**

In ancient China, the government adopts authority to govern the society instead of laws. After more than 2000 years, the Qing Dynasty (1644–1911) has developed the centralization of politics in peak condition. Specifically, laws are only used to maintain governance and guarantee the authority of the state. Thus, the public pin the hope of the enforcement of laws and contracts on honest and upright officials instead of institutions.

The authority-centered governance is destroyed by colonial powers at the end of the nineteenth century. After a series of defeats, the Qing government was forced to allow colonial powers into China during 1896-1899. Within their respective domains of control, the colonial powers imposed their own civil administration, including legal and police systems (Dong et al., 2000). It is worth noting that colonial power is divided into two types. As Lang et al. (2006) defines, one is the mercantilist colonialism that establishes extractive institutions (Acemoglu et al., 2001); the other one is liberal colonialism that introduces inclusive institutions (Acemoglu, et al., 2012).

### **2.1 The historical distribution of colonial power in China**

With reference to the history, we can identify that the colonial powers of France and Russia were extractive. The former controlled Yunnan, Hainan, Guangxi, and the majority of

Guangdong province; the latter controlled Xinjiang, Mongolia, and the three north-eastern provinces (Qian, 1948). French colonists planned to establish a prospective settlement, but their colonial power was mainly used for opium trades, pornography businesses and gambling abuse. The resources were extracted and transferred to develop their colonial settlement in Vietnam. Russia had settlement in Northern China, but the Qing government succeeded to regain the territories soon. More particularly, Russia colonists were so greedy to extract economic resources that they conducted massacre laids in their controlled regions. Thus, Russia colonists do not introduce inclusive institutions to their controlled regions, neither.

By contrast, the other regions controlled by the Great Britain (Guizhou, Sichuan, Hubei, Hunan, Jiangxi, Anhui, Jiangsu, Henan, and Zhejiang provinces), Germany (Shandong province) and Japan (Fujian province) were developed for liberalization.<sup>2</sup> There may be some small-scale political conflicts at the early stage in these controlled regions, but the colonialism in these regions bred economic institutions for later development. For one thing, foreign powers forced the Qing government to assign treaties to protect their business in China; thus, the Qing government could not expropriate the business attached with foreigners. The foreign investments and properties started to be legally protected. Because domestic investors can seek connections with foreigners, the protection generated positive externality for the investment climate. For another, lawsuits in these regions were adjudicated with reference to the legal systems of respective reigning foreign powers (e.g., Yang and Ye, 1993; Tan, 1996). Thus, the spirit of contract in the western institutions is introduced in these regions.

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<sup>2</sup>In fact, Shanghai and Tianjin are also settlements. We do not include them because they are governed by multiple colonists so that cannot be identified objectively as mercantilist or liberal colonialism. Moreover, Japan's colonialism during 1931-1945 is mercantilist colonialism, but its militarism was still constrained in its early colonialism process in the later Qing dynasty. More practically, we can drop the Japan colonial power in the period and our results are robust.

## 2.2 Hypotheses: the persistent effect of liberal colonialism

Given the above historical background, we can measure liberal colonialism with the identities of colonial powers and the qualitative evidence. Specifically, we construct the dummy for those regions controlled by the Great Britain, Germany and Japan, i.e., the dummy for liberal colonialism. We argue that liberal colonialism is an exogenous source of economic institutions for following two reasons.

First, the liberal colonists selected their sphere of colonial power by their political or economic benefits without consideration of the Qing government and Chinese. The Great British chose to occupy those regions for imports of tea and silk from China (Sa and Pan, 1996), the territorial occupation of Germany was a result of bargaining and negotiation with other foreign powers (China History Society, 1959). Japan failed to compete with Germany and then chose to occupy Fujian that is close to its southern territories. Ironically, the Qing government cannot participate in the bargaining and affect the competition among colonists, so the distribution of colonial power is exogenous for the Qing government and most Chinese at that time.

Second, the liberal colonialism affects the present development only through economic institutions. It can introduce the innovation product of modern society involving enterprise and bank and other systems (Acemoglu and Robinson, 2012), but only economic institutions as historical product in China remain this day. After subsequent revolution, wars and political chaos in China, the People Republic of China taken over all foreign firms, banks, association and other foreign-related organizations in 1949. Moreover, it initiated the socialist transformation during 1953-1956 to control all economic activities with plans and commands. The Cultural Revolution during 1966-1976 destroyed all foreign and traditional products (Walder, 2014). Fortunately, the institutions as nonphysical foreign heritage remained there and were redeveloped again after the open door policy since 1978.

Given the above argument, we first predict that liberal colonialism introduces modern

economic institutions and then endows an institutional comparative advantage to the cities historically affected by liberal colonialism. This prediction is in line with the theory of institutional comparative advantage (Levchenko, 2007 and 2013). Specifically, liberal colonists forced the Qing government “to uphold private property, encourage commercial production, and enforce the rule of law” for their sake (Lang, 2006: 1416); but they created the first institutional shock to constrain governmental expropriation in China’s history.<sup>3</sup> Second, we expect that the institutional comparative advantage promotes the allocation of credit (Djank et al., 2007), which is more generally the conclusion of the law-and-economics literature (e.g., La Porta., 1997, 1998 and 2008).

To combine the above expectations, we hypothesize that liberal colonialism promotes the allocative efficiency through economic institutions. We will test whether (1) there is a positive relationship between liberal colonialism and the allocative efficiency of financial policies; (2) the variation of institutional quality created by liberal colonialism causally and positively determines the allocative efficiency.

## **3 Data and variables**

### **3.1 Data**

The 2005 World Bank Investment Climate Survey data we use have high quality. First, the survey obtains samples from the universe of registered businesses and follows a stratified random sampling methodology. Because of the random sampling methodology, the survey data are not subject to self-selection bias. Moreover, the sampled firms are representative of the country geographically, industrially, and in firm size. The survey includes 12,400 firms

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<sup>3</sup>In China’s more than 2000 years feudalism history, a hierarchical regime and the Confucian ideology of “putting agriculture before business culture” (Brooks, 1998) results in the lack of the protection on business. As Landes (2006: 6) says, “China lacked a free market and institutionalized property rights.”

located in 120 cities of 30 provinces, whereas only Tibet, Hong Kong, Macao and Taiwan, are excluded from the survey. This is desirable because institutional background in those areas is different from the other provinces. At the same time, the survey covers firms of different sizes in all of China’s manufacturing industries.

More practically, this survey provides information to measure the allocative efficiency of capital. For one thing, it provides balance-sheet information in 2004 to calculate value added (sales minus cost of intermediate goods). For another, as mentioned before, it investigates the surveyed firm’s change of financial access after financial policies implemented since the end of 2003. Thus, we can estimate the allocative efficiency of financial policies, which will be described in the next subsection. Additionally, the survey provides information of the city in 2003, some of which we can use to be control variables.

### 3.2 The measurement of the allocative efficiency

We follow Wurgler’s approach (2000) to measure the allocative efficiency of the financial policies as the following.

$$\Delta FA_{i,j} = C_j + \theta_j \ln(1 + VA_{i,j,2004}/VA_{i,j,2003}) + \epsilon_{i,j} \quad (1)$$

where  $\Delta FA$  is the change (i.e., improvement) of the surveyed firm’s financial access, whereas  $VA$  is the value added in 2004 or 2003. The subscripts  $i$  and  $j$  refer to firm and city, respectively. In principle, efficient financial policies should allocate capitals to growing firms, so we measure the allocative efficiency by the elasticity of value added ( $VA$ ) on the potential improvement of financial access ( $\Delta FA$ ), i.e.,  $\theta$ . The survey requires responder to report the (positive) change of financial access after the financial policies on a scale from 1 to 5: (1) Can’t get a loan, (2) much more difficult, (3) a little bit more difficult, (4) No change and (5) easier. Given that most firms’ financing rely on credits in China (Clinton, 2006) and other most developing countries (Ayyagari et al., 2012); thus, this question reflects a firm’s



access to finance and this measure with focus on loans is a most standardized one in the micro-institutional literature (see Ayyagari et al., 2010; Fu, 2017).

Given that  $\Delta FA$  is measured on a scale, we use Ordinal Logit (Ologit) method for estimations to obtain the allocative efficiency measures of 120 surveyed cities. For robustness, we also use Ordinal Least Square (OLS) method. The corresponding measure of the allocative efficiency will lead to the same finding. As Table 1 presents, the allocative efficiency generated by OLS seems significantly less than that by Ologit method, but Table 2 shows that the former is highly related to the latter, i.e., the correlation coefficient equals 0.963. More formally, we will show in Section 4 that the former will generate the same finding as the latter does.

[Insert Tables 1-2 about here]

### 3.3 Liberal colonialism

As explained in Section 2, we construct a dummy to measure liberal colonialism with the identity of the city. If the city was controlled by the Great Britain, Germany and Japan during the late Qing dynasty, the dummy equals to 1. Specifically, these colonists controlled provinces including Guizhou, Sichuan, Hubei, Hunan, Jiangxi, Anhui, Jiangsu, Henan, Zhejiang, Shandong and Fujian since 1896-1899 to 1911. When the surveyed firm is located in a city of those provinces, we can identify the firm is embed in a city historically controlled by liberal colonists.

As Table 1 show, there are a bit more than half of surveyed cities were historically controlled by liberal colonialism; i.e., the mean of the dummy equals 0.576. Recall that the survey we use randomly samples firms but select the cities on the basis of the economic size. Thus, the dummy indicates liberal colonialism is significant for China's development.

### 3.4 The quality of economic institutions

The Survey asks responders to report “In commercial or other legal disputes, what percent of cases were your company’s legal contracts or properties protected (a favorable verdict was passed and enforced)”. This question not only reveals the information on property rights protection (Lin et al., 2010; Fu and Jian, 2018) but also explicitly mentions enforcement of verdict, so it reflects the quality of economic institutions at vertical and horizontal dimensions (North, 1990). Considering that the survey data are at the firm level, we use the average value among firms in the city to measure the institutional quality in the percentage form.

### **3.5 Control variables**

We first control for the natural log of GDP per capita in 2003, which represents economic development. Second, we control for GDP growth (%) in 2003 that measures the growth speed. Third, we control for the natural log of population in 2003 that proxy for the city size. Fourth, we control for openness because the openness promotes financial development (Bekaert et al., 2005). Specifically, we measure the openness by the distance from the frequently-used port. Finally, we control for the dummy for the (local) political origin of the major official because localism may affect the allocation of capital. Especially, China’s credit is controlled by local governments (Cai et al., 2011; Fu, 2017), so the allocative efficiency of financial policies may be affected by the local political origin. Specifically, the dummy equals 1 when the Communist Party of China Secretary is promoted within the city.

## **4 Liberal colonialism and the allocative efficiency**

This section estimates the reduced-form relationship between liberal colonialism during 1896-1899 and the allocative efficiency of financial policies in 2004. We conduct a series of tests to verify that the potential endogeneity bias is negligible. Thus, the relationship of interest

tends to be robust.

## 4.1 Baseline estimates

We conduct the regression according to the following equation to estimate the relationship between liberal colonialism and the allocative efficiency.

$$AE_j = C + a_1 LC_j + b_1 Z_j + e_j \quad (2)$$

where  $AE$  is the outcome of interest, the allocative efficiency of financial policies in 2004.  $LC$  is the dummy for liberal colonialism, the variable of interest.  $Z$  is the set of control variables at the city level, as introduced before. We adopt robust standard errors or cluster the standard errors at the province level. Given the allocative efficiency is positive or negative, we just use Ordinal Least Squares (OLS) for estimations.

**[Insert Table 3 about here]**

As Columns 1-2 of Table 3 show, liberal colonialism is negatively and significantly related to the allocative efficiency estimated under Ologit method. For robustness, we also use the allocative efficiency generated by the OLS method. OLS method is inefficient to estimate the elasticity for the measurement of outcome, but as Columns 3-4 shows, the coefficient of interest is also negatively significant at least 10% level.

Moreover, most control variables are insignificant; only distance to the port is positively and weakly significant. The poor explanation of our control variables partially be explained by the fact that we only control for relatively exogenous variables to avoid the bad-control issue (see Angrist and Pischke, 2008). Furthermore, R square is relatively small; it only reaches 0.07 (or 0.05) for the variable of outcome. This indicates some omitted variables have a significant explanation power on the variable of outcome. However, Section 4.3 will show that the endogeneity bias due to omitted variables is unlikely to offset the effect of interest under our baseline estimates.

## 4.2 Robustness to measurement errors or confounding factors

Our measure of liberal colonialism follows the standard approach, but we admit that the measurement is imperfect such that the effect of liberal colonialism may be confounded by other factors. This subsection controls for additional variables to isolate the effect of liberal colonialism on the allocative efficiency.

$$AE_j = C + a_2LC_j + b_2Z_j + dW_j + e_j \quad (3)$$

where  $W$  is the set of additional controls that may confound the variable of interest. Considering these confounding factors tend to be endogenous, we do not control for them in the main estimations (i.e., baseline estimations and the later IV estimations). At the same time, the following controls for confounding factors one by one to test whether each of them can affect the coefficient of interest.

Considering that colonial power historically stimulated the geographical pattern of territorial partitioning and gradually empowered local governments (Dougherty and Pfaltzgraff, 2000), we first control for an additional variable that measures the capacity of local governments (Acemoglu et al., 2015 and 2016). With reference to Acemoglu et al. (2015 and 2016), we measure the state capacity of a local government by the natural log of [1 plus the length of highways in the city in 2003]. Considering that highway may be invested by more than one cities, we also measure the local state capacity by using the information on roads. As Columns 1-4 of Table 4 shows, the local state capacity, measured by either highways or roads, is insignificantly related to the allocative efficiency.

**[Insert Table 4 about here]**

After the colonialism, China has another institutional shock to liberalize its economies. The Chinese central government in 1980s-1990s opens some cities. Because these open cities may overlap the cities controlled by colonial power, we also try controlling for the dummy

for open-cities. As Columns 5-6 show, the dummies for open cities are insignificantly related to variable of outcome.

### 4.3 Robustness to omitted variables

We test the potential bias due to omitted variables as Altonji et al. (2005) suggest. Theoretically speaking, selection on observables can be used to assess the potential bias from omitted variables. Thus, Altonji et al. (2005) develops a strategy to gauge the strength of the likely bias arising from omitted variables. Simply speaking, a regression is used as benchmark; whereas another one uses additional control(s) to obtain new coefficient, the coefficient change indicates the likely bias due to omitted variables. Put it differently, this method assumes that the additional control(s) to be omitted variables, then the calculation using the coefficient change due to adding additional control(s) should be the strength of the likely bias.

With reference to the coefficients of liberal colonialism in Equations (2) and (3) to calculate the ratio,  $a_2/|a_1 - a_2|$ , to test the bias from omitted variables. In words of Nunn and Wantchekon (2011: 3238), the higher is the ratio, “the less the estimate is affected by selection on observables, and the stronger selection on unobservables [i.e., omitted variables] needs to be (relative to observables) to explain away the entire effect.”

**[Insert Table 5 about here]**

We report the results in Table 5. If we only use one particular confounder as an unobservable and omitted variable, the ratio reaches at least 36.778. If we use the dummy for open cities and the local state capacity (either highways or roads), the ratio also reaches 27.333 or 11.593. Thus, the bias due to omitted variables should not be big enough to offset the true effect of coefficients. Moreover, when we control the open-cities dummy, the coefficient of interest will be increased. On contrary, controlling the local state capacity decreases the

coefficient of interest. Thus, even when we can control for all possible omitted variables, it is less likely that the estimated effect of interest is consistently and fully driven by omitted variables.

This section estimates the effect of liberal colonialism during 1896-1899 on the allocative efficiency of financial policies in 2004. We just conduct reduced-form estimations here, but we use tests to justify the endogeneity concern due to the measurement errors, confounders or omitted variables is negligible. To formally test the causal effect of liberal colonialism and its channel on economic institutions, we will use IV estimations in the next section.

## 5 Liberal colonialism, economic institutions and the allocative efficiency

To examine whether liberal colonialism as the historical source of economic institutions causally promotes the allocative efficiency, we conduct IV estimations.

### 5.1 First-stage estimates: liberal colonialism as an exogenous source of economic institutions

To verify the exogeneity of liberal colonialism for the allocative efficiency rather than economic institutions, we conduct the following regressions.

$$IQ_j = C + \alpha_1 LC_j + \beta_1 Z_j + e_j \quad (4)$$

$$AE_j = C + fIQ_j + \alpha_3 LC_j + b_3 Z_j + e_j \quad (5)$$

where IQ in Equation (4) is the institutional quality at the city level in 2004. Equation (4) test whether liberal colonialism is related to the institutional quality in 2004; the coefficient of  $\alpha_1$  is expected to be significantly positive. By contrast, we follow Acemoglu et al. (2002)

to conduct a test for the exclusion restriction. Specially, we examine whether the liberal colonialism has no significant impact on allocative efficiency except through institutional quality (Equation (5)). The coefficient of  $f$  is expected to be insignificant. We also use robust or clustered standard errors as before.

**[Insert Table 6 about here]**

We report the corresponding results in Table 6. As the table shows, liberal colonialism indeed is significantly and positively related to institutional quality (see Columns 1-2). In particular, F statistics of the first-stage estimates are larger than 10. As Columns 3-4 show, liberal colonialism becomes insignificant after liberal colonialism being controlled for. Thus, liberal colonialism should be an exogenous IV of institutional quality for the allocative efficiency.

## 5.2 Second-stage estimates

We conduct second stage estimates according to the following equation.

$$AE_j = C + \gamma I\hat{Q}_i + \delta Z_i + e_i \quad (6)$$

where  $I\hat{Q}$  is the fitted value of  $IQ$ , which is estimated from Equation (4). As expected, the coefficient of  $\gamma$  is significantly positive as the coefficient of  $a_1$  in Equation (2) to be. As Table 7 shows, institutional quality is significantly and positively related to the allocative efficiency, irrespective of robust or clustered standard errors being adopted. Thus, the effect of institutional quality deriving from the liberal colonialism causally promotes the allocative efficiency. Put it differently, liberal colonialism promotes the allocative efficiency through the quality of economic institutions, thereby confirming our second hypothesis.

**[Insert Table 7 about here]**

Moreover, all of controls under 2nd-stage estimations obtain the same signs under the baseline estimations. At the same time, as the baseline estimates show, only the coefficient of distance to the port is moderately significant as before. This reveals that our estimates are highly robust to the potential endogeneity bias.

Additionally, we also conduct use second-stage estimations to further tests for the assumption of the exclusion restriction. Specifically, we regress the residuals from the second-stage estimations on our IV. If our IV affects allocative efficiency only through institutional quality, the former should be not correlated with the latter. As a result, the IV had no significant impact on the residuals (see Columns 3-4).

## 6 Conclusions

With evidence from China, this paper documents that liberal colonialism has a positive subsequent impact on the allocative efficiency of financial policies. This paper contributes by offering a deep understanding of colonialism in long-term developmental trajectories. Most of the existing literature either divides colonialism as settler colonialism and extractive colonialism (Acemoglu et al., 2001) or direct colonialism and indirect colonialism (e.g., Lang, 2004); by contrast, this paper follows a new division with mercantilist colonialism and liberal colonialism (Lang et al., 2006). To the best of our knowledge, we contribute a first empirical analysis on the impact of liberal colonialism on allocative efficiency.

Given that the liberal colonialism in China's history is theoretically exogenous, we first conduct reduced-form estimations to show that liberal colonialism is positively related to the allocative efficiency in 2004 of financial policies. We especially adopt tests to verify that the endogeneity bias due to the endogeneity concern is negligible. More specially, we conduct IV estimations to document that liberal colonialism as the exogenous source of the quality of economic institutions in 2004 causally promotes the allocative efficiency in 2004. In particular, we also directly test the exclusion restriction of liberal colonialism as the



instrument of the quality of economic institutions for the allocative efficiency and confirm that the effect of liberal colonialism persists to this day only through economic institutions.

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## Tables

**Table 1: Descriptive statistics**

Variable	Obs	Mean	Median	Std. Dev	Min	Max
Allocative efficiency (Ologit)	120	0.296	0.261	0.792	-2.686	2.895
Allocative efficiency (OLS)	120	0.198	0.163	.421	-1.211	1.628
Liberal colonialism	118	0.576	1	0.496	0	1
Institutional quality (mean)	120	63.731	66.739	16.828	26.95	96.167
GDP per capita	120	9.654	9.637	0.645	8.191	11.184
GDP growth	120	22.872	21.674	12.182	8.241	132.538
Population	120	6.196	6.257	0.529	4.840	7.927
Distance to port	120	4.842	5.534	2.267	0	8.313
Political resource	120	0.367	0	0.484	0	1

*Notes:* Allocative efficiency (Ologit) refers to the allocative efficiency in 2004 of financial policies implemented since the end of 2003, which is estimated with Ordinal Logit method according to the approach of Wurger (2000). Allocative efficiency (OLS) is that with OLS method.

<b>Table 2: Correlation matrix</b>								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Allocative efficiency (Ologit)	1							
(2) Allocative efficiency (OLS)	0.963	1						
(3) Liberal colonialism	0.170	0.172	1					
(4) Institutional quality (mean)	0.025	0.067	0.332	1				
(5) GDP per capita	-0.008	0.015	-0.143	0.031	1			
(6) GDP growth	0.113	0.082	0.179	-0.071	-0.176	1		
(7) Population	0.031	0.020	0.303	0.141	-0.167	0.182	1	
(8) Distance to port	0.072	0.124	-0.136	-0.272	-0.385	0.106	-0.065	1
(9) Political resource	0.089	0.089	0.064	0.040	0.009	0.126	0.160	0.085

*Notes:* Allocative efficiency (Ologit) refers to the allocative efficiency in 2004 of financial policies implemented since the end of 2003, which is estimated with Ordinal Logit method according to the approach of Wurger (2000). Allocative efficiency (OLS) is that with OLS method.

**Table 3: Baseline estimates (OLS)**

Dependent variable:	Allocative efficiency is estimated by *			
	Ordinal Logit		OLS	
Liberal colonialism	0.340** (0.165)	0.340*** (0.113)	0.159* (0.087)	0.159** (0.074)
GDP per capita	0.149 (0.155)	0.149 (0.110)	0.046 (0.076)	0.046 (0.052)
GDP growth	0.003 (0.004)	0.003 (0.004)	0.003 (0.003)	0.003 (0.003)
Population	-0.045 (0.134)	-0.045 (0.087)	-0.026 (0.073)	-0.026 (0.052)
Distance to the port	0.066+ (0.042)	0.066* (0.038)	0.020 (0.021)	0.020 (0.018)
Political origin of the official	0.096 (0.161)	0.096 (0.081)	0.055 (0.088)	0.055 (0.056)
Constant	-1.480 (2.029)	-1.480 (1.389)	-0.353 (1.011)	-0.353 (0.675)
SE	Robust	Clustered <sup>#</sup>	Robust	Clustered <sup>#</sup>
R2	0.07	0.07	0.05	0.05
N	118	118	118	118

*Notes:* \* Allocative efficiency is estimated by the elasticity of interest according to the approach of Wurger (2000). Specifically, we use Ordinal Logit method for the estimation; for robustness, we here also use the Allocative efficiency estimated with OLS method. # Standard errors are clustered at the city level. +  $p < 0.15$ ; \*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$ .



<b>Table 4: Robustness to confounding variables</b>						
Dependent var.	Allocative efficiency (Ologit)					
	Liberal colonialism (Ologit)	0.341** (0.162)	0.341*** (0.110)	0.339** (0.165)	0.339*** (0.111)	0.331* (0.168)
GDP per capita	0.162 (0.160)	0.162 (0.125)	0.138 (0.155)	0.138 (0.111)	0.124 (0.164)	0.124 (0.153)
GDP growth	0.004 (0.005)	0.004 (0.004)	0.003 (0.004)	0.003 (0.004)	0.003 (0.005)	0.003 (0.004)
Population	-0.161 (0.174)	-0.161 (0.130)	-0.081 (0.148)	-0.081 (0.097)	-0.035 (0.150)	-0.035 (0.100)
Distance to the port	0.060+ (0.040)	0.060+ (0.037)	0.064+ (0.042)	0.064+ (0.038)	0.074+ (0.048)	0.074 (0.053)
Political origin of the official	0.095 (0.162)	0.095 (0.081)	0.103 (0.164)	0.103 (0.083)	0.095 (0.161)	0.095 (0.077)
State capacity (highway)	0.174 (0.148)	0.174 (0.136)				
State capacity (road)			0.038 (0.044)	0.038 (0.032)		
Open cities					0.082 (0.299)	0.082 (0.283)
Constant	-2.355 (2.338)	-2.355 (1.942)	-1.321 (2.050)	-1.321 (1.405)	-1.353 (1.981)	-1.353 (1.461)
SE	Robust	Clustered <sup>#</sup>	Robust	Clustered <sup>#</sup>	Robust	Clustered <sup>#</sup>
R <sup>2</sup>	0.07	0.07	0.07	0.07	0.05	0.05
N	118	118	118	118	118	118

Notes: Allocative efficiency (Ologit) refers to the allocative efficiency in 2004 of financial policies implemented since the end of 2003, which is estimated with Ordinal Logit method according to the approach of Wurger (2000). # Standard errors are clustered at the city level. +  $p < 0.15$ ; \*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$ .

<b>Table 5: The likely bias from omitted variables</b>			
Additional control	One confounding factor:		
	Open cities	State capacity (highway)	State capacity (road)
	36.778	34.1	33.9
Additional controls: open cities plus		State capacity (highway)	State capacity (road)
		27.333	11.593

Notes: Each cell of the table reports ratios based on the coefficients from two individual level regressions. In one, the covariates only include dummies for cities and industries. Call this efficient  $a_2$ . In the other,  $a_1$ . the covariates include the “full set” of controls. Call this efficient  $a_1$ . In both regressions, the sample sizes are the same. The reported ratio is calculated as:  $a_2/|a_1 - a_2|$ .

**Table 6: First-stage estimates**

Dependent variable:	Allocative efficiency (Ologit)			
Test for	Relevance condition		Exclusion restriction	
Liberal colonialism	11.056*** (1.563)	11.056*** (3.207)	0.244 (0.175)	0.244* (0.122)
Institutional quality			0.006 (0.007)	0.006 (0.006)
GDP per capita	1.440 (1.323)	1.440 (1.738)	0.125 (0.158)	0.125 (0.105)
GDP growth	-0.197*** (0.043)	-0.197*** (0.044)	0.005 (0.005)	0.005 (0.005)
Population	3.787** (1.615)	3.787** (1.668)	-0.040 (0.140)	-0.040 (0.086)
Distance to the port	-0.694* (0.390)	-0.694 (0.514)	0.073* (0.044)	0.073+ (0.045)
Political origin of the official	0.782 (1.555)	0.782 (1.427)	0.072 (0.163)	0.072 (0.084)
Constant	26.959+ (18.156)	26.959 (21.554)	-1.710 (2.099)	-1.710 (1.471)
SE	Robust	Clustered <sup>#</sup>	Robust	Clustered <sup>#</sup>
F statistic	50.018	11.887		
R <sup>2</sup>	0.427	0.427	0.06	0.06
N	118	118	118	118

*Notes:* Allocative efficiency (Ologit) refers to the allocative efficiency in 2004 of financial policies implemented since the end of 2003, which is estimated with Ordinal Logit method according to the approach of Wurger (2000). # Standard errors are clustered at the city level. +  $p < 0.15$ ; \*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$ .

**Table 7: Second-stage estimates**

Dependent variable:	Allocative efficiency (Ologit)		Residual of second-stage estimates	
Institutional quality	0.031** (0.015)	0.031** (0.013)		
Liberal colonialism			-0.000 (0.089)	-0.000 (0.086)
GDP per capita	0.105 (0.154)	0.105 (0.113)	0.000 (0.079)	0.000 (0.053)
GDP growth	0.009* (0.005)	0.009* (0.005)	-0.000 (0.003)	-0.000 (0.003)
Population	-0.162 (0.159)	-0.162+ (0.112)	-0.000 (0.077)	-0.000 (0.057)
Distance to the port	0.087* (0.049)	0.087* (0.046)	-0.000 (0.022)	-0.000 (0.021)
Political origin of the official	0.072 (0.166)	0.072 (0.093)	0.000 (0.091)	0.000 (0.063)
Constant	-2.310 (2.213)	-2.310+ (1.566)	-0.000 (1.071)	-0.000 (0.753)
SE	Robust	Clustered <sup>#</sup>	Robust	Clustered <sup>#</sup>
R2			0.00	0.00
N	118	118	118	118

*Notes:* Allocative efficiency (Ologit) refers to the allocative efficiency in 2004 of financial policies implemented since the end of 2003, which is estimated with Ordinal Logit method according to the approach of Wurger (2000). # Standard errors are clustered at the city level. +  $p < 0.15$ ; \*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$ .

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