THE UNIVERSITY OF TEXAS AT SAN ANTONIO, COLLEGE OF BUSINESS

Working Paper SERIES

WP # 0045ECO-202-2012

Date November 15, 2012

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Determinants of the Confucius Institute Establishment

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(November 2012)

Abstract:

This paper investigates the determinants of the Confucius Institute (CI) establishment. It is shown that trade, geographical distance, developing country, and English speaking are important factors whereas GDP and population are marginally significant. Overall, CIs are under-represented in a non-English, distant, less wealthy developing country that trades infrequently with China. The results suggest that the CI network will have greater global impacts when new or more CIs are established in non-English speaking developing countries.

Keywords: Confucius Institute; Language training; Soft power; Language demand.
JEL Classification: A20, D02

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1. Introduction

Confucius Institute (CI) is a project initiated by Hanban (The Office of Chinese Language Council International) in 2004.[1] Its main purpose is to promote global knowledge of Chinese language and culture, and to deepen friendships between China and the rest of the world. The first Confucius Institute (CI) was launched in 2004. Since then, the number of CIs has increased drastically. By December 2011, there were a total of 358 CIs and 503 Confucius Classrooms (mostly satellite facilities related to the CIs) in 105 countries and regions around the world (Xu, 2012).

Across nations, what are the factors determining the successful establishment of a CI? On the demand side, CI is a language and culture institute. Thus, a CI is established when there is sufficient local demand for learning Chinese language and culture. Previous literature suggests several factors which determine the benefits and costs of learning a foreign language and hence the demand for the foreign language. On the supply side, the application for establishing a CI must be pre-approved by Hanban. The application procedures and the decision criteria are critical for the final approval. Therefore, the application itself incurs a cost, which may reduce the incentives for some potential host organizations to entertain the idea of setting up a CI. In this paper, we provide an econometric analysis to uncover the major factors that facilitate the establishment of a CI in a host country.

[1] Hanban, also known as Confucius Institute Headquarters, is a public institution affiliated with Chinese Ministry of Education. In this paper, we will use Hanban and the Headquarters exchangeably.

Our empirical analysis finds the following: (i) Import from China has a significant positive effect; (ii) GDP has a marginally significant positive effect; (iii) Population has a marginally significant positive effect; (iv) Geographical distance negatively affect the establishment of CIs; (v) English speaking countries have more CIs after controlling all other factors; (vi) Developing countries have fewer CIs; (vii) Per capita GDP has a non-robust weakly negative effect. All other factors, including foreign direct investment (FDI) from China and language distance, do not have significant impacts on the CI establishment. These results provide useful policy implications for the future development of the global CI network.

The remainder of this paper is organized as follows. We first describe the development of the CI programs. Next, we discuss possible factors for the establishment of a CI in a host country and provide several hypotheses. Various gravity-type model specifications are applied to test the hypotheses. We then present the empirical results, followed by a summary of conclusions.

2. Development of the Confucius Institute Programs[2]

China is not the first country to establish an international network of language and culture institutes. In fact, when launching the first CI in 2004, Hanban adopted an institute development strategy similar to those adopted by Germany's Goethe Institutes, France's Alliances Frances and the UK's British Council with some major modifications.[3]

[2] This section is abstracted from Section 2 in Lien, Oh and Selmier (2012).

[3] Unlike other language and culture institutes, the motivation for and operations of CIs have received many comments, mostly, with a few exceptions, positive, primarily due to different political systems. Some foreign observers concern with the increase in China's soft power through the CI. Ding and Saunders (2006)

Specifically, a CI is owned by Hanban and hosted by a foreign partner organization. The establishment of a CI follows a formal and regular procedure. First, a foreign organization (usually a university) interested in hosting a CI must submit an application to the Headquarters for approval. The proposal must demonstrate the following conditions: (i) There is a strong demand for Chinese language instruction in the university and local community; (ii) The potential host organization is willing and able to contribute to the establishment and the growth of the CI both fiscally and physically; and (iii) A partner organization has been pre-selected for the CI for this endeavor. After the proposal is submitted, it normally takes a year and longer to obtain the final approval from the Headquarters (if approved), which is followed by an agreement signed between the Headquarters and the host organization and another agreement between the host organization and the Chinese partner. Thus, a CI will officially be functioning approximately 18 months after the initial project is undertaken by the host.

The startup funding for a CI is provided by Hanban. Subsequent annual operation funding is provided by Hanban with matching funds from the host organization. For language class offering, the teachers are usually dispatched from the Chinese partner organization whereas the facilities are provided by the host organization. The unique facilities-sharing arrangement with local institutions contributes to the better operating efficiency of the CI than other models such as the British Council (Nakagawa, 2011; Starr, 2009). Currently, the startup fund is set at US$150,000. For 2010, the average operation

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and Hsiao (2008) suggested the Institutes were put in place specifically for the purpose of enhancing China's soft power.

fund of a CI is around US$500,000 (Xu, 2011).[4]

3. Factors affecting Confucius Institute Establishment

The demand for a foreign language arises from cost and benefit considerations of learning the foreign language. The learning cost depends upon the closeness of the target language to the speaker's native language (which determines the time needed to acquire the foreign language) and the relative wage level (which determines the value of the time spent on learning). The greater the dissimilarity between the native and new languages is, the greater the cost in terms of time and effort of learning the new language, thereby discouraging the acquisition of the new language. However, the benefit of acquiring the new dissimilar language is high because only few people can speak the target language in their countries. Thus, we do not have a prediction for the effect of language closeness (or distance) for the demand side. Relatively lower wage for the potential student lowers the opportunity costs and increases the corresponding benefits (Choi, 2002; Chiswick, 2008). Using the per capita GDP as a proxy for wage, we have the following prediction: *Confucius Institutes are less likely to prevail in a country where its per capita GDP is large or when its spoken language is farther away from Chinese*.

Lazear (1999) and Ginsburgh, Ortuño-Ortín, and Weber (2007) suggest that the number of people speaking the native language and the number of people speaking the target language affect the demand as well. Intuitively, a larger population speaking the native language reduces the benefits and the incentive to learn whereas a larger population

[4] The fast expansion of the CI network has raised a concern for the Headquarters because of the rapidly increasing demand on its budget. Sustainability of the CI was a major topic for the 5th Confucius Institute Forum and the 6th Confucius Institute Forum held at Beijing in 2010 and 2011, respectively

speaking the target language increases the benefits and the incentive to learn. These results are formally demonstrated within the communicative benefit framework of Selton and Pool (1991). In particular, when the population size increases, a smaller proportion will acquire the foreign language (Lien, 2013). However, the total number of individuals acquiring the target language may increase or decrease, pending on the trade-off between the increase in the population size and the reduction in the percentage of learners. Thus, we do not have a prediction for the effect of the population size.

Language and culture barriers are main transaction costs in trade and FDI. If a country has strong trade and investment relationships with China, there will be great incentives for her citizens to acquire Chinese due to the resulting larger benefits. We predict that, *Confucius Institutes are more likely to prevail in a country where it has a strong economic relationship with China in trade or FDI.*

Other non-economic factors that may impact the incentives to learn the new language include national political will (Grin, 2005; Portuese, 2012), individual motivation (Chiswick, 2008), and difficulty of learning the new language (Chiswick and Miller, 2004). Overall, the enormous population base, the rapid increase in national wealth, and the tremendous growth in trading opportunities provide strong incentives for non-Chinese to learn Mandarin Chinese, leading to the expansion of the CI network.

Turning to the supply side, the application process takes time and cost due to the need for continual communication, discussion, negotiation, and occasional visits to the Headquarters. The cost is more affordable for a rich country relative to a poor country as the budgets to higher education institutes in the former country would be greater. As a

consequence, *GDP should have a positive effect on the establishment of Confucius Institutes*. The cost requirement is particularly unfavorable to developing countries. Thus, *developing countries are less likely to establish Confucius Institutes*. In addition, geographic distance and language distance adversely affect the communication effectiveness and possible visits to the Headquarters.[5] We expect the following: *Confucius Institutes are less likely to prevail in a country where its geographic distance or language distance from China is large.*

In most cases, lingua franca, such as English, is beneficial for the application process. Specifically, there are many staff members in the Headquarters who are able to communicate in English, as compared to other non-Chinese languages. Communication effectiveness reduces the application cost. *Consequently, Confucius Institutes are more likely to prevail in an English-speaking country.* Ku and Zussman (2010) and Oh, Selmier and Lien (2011) showed that, lingua franca helps promote trade and FDI relationships.

The evaluation criteria for the proposal by Hanban are mainly, (1) the host organization is able to provide physical facility and matching funds and (2) there is a large demand for Chinese teaching. Consequently, GDP and the population size are both benefactors for a successful proposal for Confucius Institute. Combining all the above predictions, we offer the following hypotheses:

Hypothesis 1: *Both GDP and population contribute positively to the establishment of Confucius Institute, whereas per capita GDP has a negative impact.*

Hypothesis 2: *Trade and FDI both promote the establishment of Confucius Institute.*

[5] Campbell, Eden, and Miller (2012) suggested that the social responsibility effort by an MNC is adversely affected by the geographic and cultural distances between host and home countries as there would be fewer direct contacts.

Hypothesis 3: *Geographic and language distance both discourage the establishment of Confucius Institute.*

Hypothesis 4: *Confucius Institute is less likely to be established in a developing country but more likely in a country whose major spoken language is English.*

4. Data and Model

4.1. Model

We use a negative binomial regression model in order to estimate the determinants of CI establishment because our dependent variable is a count variable. We could use a Poisson regression model, but a symptom of over-dispersion, i.e., the standard deviation is larger than the mean of dependent variable, leads us to use a negative binomial regression model. The model can be represented by the following equation:

$$(1) \quad P(y_{i,t};X) = \ln\left[1-\exp\left(-\exp(X_{i,t}\beta)\right)\right] + y_{i,t}\left\{\ln\left[\exp(X_{i,t}\beta)/\left(1+\exp(x_{i,t}\beta)\right)\right]\right\}$$

$$-\ln\left\{1+\exp(X_{i,t}\beta)\right\}/\alpha + \ln\Gamma(y_{i,t}+1/\alpha) - \ln\Gamma(y_{i,t}+1) - \ln\Gamma(1/\alpha) - \ln\left\{1-\left(1+\exp(X_{i,t}\beta)\right)^{-1/\alpha}\right\},$$

where $y_{i,,t}$ is the number of CIs in host country i at year t. $X_{i,t}$ is a vector of independent and control variables, and β is the vector of coefficients to be estimated. Γ is the gamma function and α is the over-dispersion parameter. We estimate Equation (1) taking into account year fixed effects.

The vector of $X_{i,t}$ includes the following: $TRADE_{i,t-1}$ is the logarithm of the value of China's export to host country i; $FDI_{i,t-1}$ is the logarithm of the value of China's direct investment into country i; $GDP_{i,t-1}$ is the logarithm of GDP (gross domestic product); $GDPPC_{i,t-1}$ is the logarithm of per capita GDP; $DIST_i$ is the logarithm of geographic distance between China and country i; $BORDER_i$ is a dummy variable for sharing common border; $LANGDIST_i$ is the logarithm of language distance between Mandarin Chinese and

official (or major) language of country *i*; $ENGLISH_i$ is a dummy variable for countries where English is an official (or major) language; DC_i is a dummy variable for developing countries; T_t is the year fixed effect; and $\varepsilon_{i,t}$ is the residual term. We used heteroskedasticity-robust standard error clustered by host country *i*. Also, we used lagged variables for TRADE, FDI, GDP, and GDPPC in order to reduce potential endogeneity issues.

4.2. Data

Our dependent variable is the number of CIs during 1998-2008, which is collected from the official website of Hanban. The source of China's exports is the Direction of Trade Statistics (DOTS) published by International Monetary Fund. The sources of direct investment flows are the Almanac of China's Foreign Economics and Trade, China Commerce Yearbook, and Statistical Bulletin of China's Outward Foreign Direct Investment published by the Ministry of Commerce of the People's Republic of China. The source of GDP and per capita GDP is the World Development Indicator by the World Bank. The source of Geographic Distance, Common Border, and English Speaking Country information is the World Factbook by Central Intelligence Agency. Language Distance is a continuous measure, which is developed by a group of lexicostatistics scholars (Brown, Holman, Wichmann, and Velupillai, 2007). Our Developing Country dummy was measured by the membership of Organization of Economic Co-operation and Development (OECD). All monetary variables adopt a common numeraire of U.S. dollar based to the year 2000. Table 1 provides summary statistics and correlation matrix. The variance inflation factor of the model is 2.29 and the highest individual variance inflation factor is 5.37 for GDP. It shows that multicollinearity is not a concern in our model.

5. Estimation Results

The first column of Table 2 shows our main results. We find that the host country's GDP has a positive effect, but marginally significant, on the establishment of CI ($\hat{\beta}$ = 0.3498, $p < 0.10$), while per capita GDP has a negative effect, but marginally significant, on the establishment ($\hat{\beta}$ = -0.2646, $p < 0.10$). The results weakly support Hypothesis 1.

In regard to Hypothesis 2, trade significantly promotes the establishment of CI ($\hat{\beta}$ = 0.4019, $p < 0.05$), but FDI does not promote the establishment ($\hat{\beta}$ = 0.0244, *n.s.*). Thus Hypothesis 2 is partially supported. We presume that Chinese multinational enterprises adopt the host country languages or use English in order to communicate with local workers instead of forcing them to use Chinese.

Hypothesis 3 is also partially supported: geographic distance has a negative effect on the establishment of CI ($\hat{\beta}$ = -0.6064, $p < 0.01$), but language distance does not have an effect on the establishment ($\hat{\beta}$ = 0.2765, *n.s.*). It is likely because the demand-side benefits of acquiring dissimilar language offset the supply-side operating costs of language distance between a host country language and Chinese.

Finally, Hypothesis 4 is strongly supported. Developing countries less likely have CIs ($\hat{\beta}$ = -0.8669, $p < 0.05$), while English speaking countries more likely have the Institutes ($\hat{\beta}$ = 0.5918, $p < 0.05$).

In the second column, we tested a model by replacing GDP with population due to the high correlation between GDP and per capita GDP. The mathematical specifications of two models are essentially the same due to the nature of logarithm transformation. The results show that population has a positive effect, albeit marginally significant, on the establishment of Confucius Institute ($\hat{\beta}$ = 0.3498, $p < 0.10$). The coefficients of all other

variables are about the same with those in the Column 1, but per capita GDP lose its significance. Thus we cannot accept Hypothesis 1.

The over-dispersion parameter of negative binomial distribution is marginally significant, and the log-likelihood ratio tests show that the over-dispersion parameter is only marginally significantly different from zero ($p < 0.10$). Thus, we cannot firmly reject the Poisson distribution in favor of the negative binomial distribution. For a robustness check, in the third and fourth columns, we replicated models in Columns 1 and 2 by using Poisson estimator. Although, most coefficients show consistent results with those in Columns 1 and 2, we found that per capita GDP does not have an impact on the establishment of CI. In addition, developing country dummy is now only marginally significant.

6. Conclusions

In this paper, we consider demand and supply side factors to investigate the determinants of the global Confucius Institute establishment. It is shown that trade, geographical distance, developing country, and English speaking are important in the establishment of CIs. That is, CI is under-represented in a non-English distant developing country that trades infrequently with China.

The results suggest the future development of the CI network should focus on these countries. Lien, Oh and Selmier (2012) documented that a CI has strongly positive effects on trade and FDI for a developing country. This new direction would therefore enhance the importance of CIs. The Development Plan of Confucius Institute issued by Confucius Institute in 2011 emphasizes the increasing efforts toward developing countries in Africa, Asia, and Latin America, which is consistent with our recommendation. We recommend additional efforts be extended to non-English speaking countries.

Table 1 Summary statistics and correlation matrix

	Mean	S.D.	Min	Max	1	2	3	4	5	6	7	8	9.
1. Confucius Institutes	0.211	1.407	0	31									
2. Trade (log)	5.781	2.254	-1.399	12.551	0.299								
3. FDI (log)	2.889	3.120	0	13.947	0.239	0.373							
4. English	0.209	0.407	0	1	0.079	-0.103	0.078						
5. Developing Countries	0.757	0.429	0	1	-0.181	-0.614	-0.018	0.043					
6. GDP (log)	24.066	2.074	18.726	30.090	0.255	0.858	0.284	-0.175	-0.654				
7. Per capita GDP (log)	7.860	1.657	4.191	10.944	0.149	0.621	-0.015	-0.137	-0.655	0.727			
8. Distance (log)	8.602	0.428	6.385	9.393	-0.112	-0.254	-0.079	0.156	0.187	-0.216	-0.225		
9. Border	0.026	0.159	0	1	0.061	0.102	0.240	-0.071	0.093	0.072	-0.049	-0.291	
10. Language Distance (log)	4.603	0.193	0	4.654	-0.024	-0.091	-0.117	-0.015	-0.037	-0.038	-0.063	0.106	-0.122

N=1551.

Table 2 Demand for Confucius Institutes

	Negative Binomial		Poisson	
Variable	(1)	(2)	(3)	(4)
GDP (lagged)	0.3498†		0.3046†	
	(0.1802)		(0.1742)	
Per capita GDP (lagged)	-0.2646†	0.0852	-0.2269	0.0777
	(0.1461)	(0.1818)	(0.1535)	(0.1883)
Trade (lagged)	0.4019*	0.4019*	0.4401*	0.4401*
	(0.1971)	(0.1971)	(0.1923)	(0.1923)
FDI (lagged)	0.0244	0.0244	0.0343	0.0343
	(0.0426)	(0.0426)	(0.0437)	(0.0437)
Geographic distance	-0.6064**	-0.6065**	-0.4959***	-0.4959***
	(0.2300)	(0.2301)	(0.1342)	(0.1342)
Language distance	0.2765	0.2764	0.3174	0.3174
	(0.1858)	(0.1858)	(0.2161)	(0.2161)
Developing country	-0.8669*	-0.8672*	-0.7601†	-0.7601†
	(0.4072)	(0.4072)	(0.4620)	(0.4620)
English	0.5918*	0.5919*	0.5746*	0.5746*
	(0.2469)	(0.2469)	(0.2383)	(0.2383)
Population (lagged)		0.3498†		0.3046†
		(0.1802)		(0.1742)
Common border	0.3375	0.3376	0.3227	0.3227
	(0.6946)	(0.6947)	(0.7313)	(0.7313)
Constant	-22.8375**	-23.7485***	-27.1600***	-27.1600***
	(3.4361)	(3.4315)	(6.3202)	(5.4322)
N	1151	1151	1151	1151
Log-likelihood	-209.1854	-209.1854	-210.4653	-210.4653
Log of level of over-dispersion	-2.2209†	-2.2207†		
	(1.3265)	(1.3268)		
Likelihood ratio test of over-dispersion ($\chi 2$)	2.56†	2.56†		

Note: 114 countries were used for host country. † if $p < 0.10$, * if $p < 0.05$; ** if $p < 0.01$; *** if $p < 0.001$. Heteroskedasticity and autocorrelation robust standard errors clustered by host country are in parentheses. Year fixed effects are estimated but are not reported here.

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