Does the Confucius Institute Impact International Travel to China? A Panel Data Analysis

Donald Lien
Department of Finance
University of Texas
San Antonio, TX 78249

Sucharita Ghosh
Department of Economics
The University of Akron
Akron, OH 44325

Steven Yamarik
Department of Economics
California State University
Long Beach, CA 90840

Does the Confucius Institute Impact International Travel to China? A Panel Data Analysis

Donald Lien
Department of Finance
University of Texas
San Antonio, TX 78249
Phone: (210) 458-8070
Email: don.lien@utsa.edu

Sucharita Ghosh
Department of Economics
The University of Akron
Akron, OH 44325
Phone: (330) 972-7549
Email: sghosh@uakron.edu

Steven Yamarik
Department of Economics
California State University
Long Beach, CA 90840
Phone: (562) 985-4634
Email: syamarik@csulb.edu

February 20, 2013

Abstract

This paper examines the impact of Confucius Institutes on inbound travel to China. We estimate a panel gravity model of inbound tourism flows to China between 2004 and 2010. Pooled least squares estimates show that a Confucius Institute increases overall inbound tourism as well as business tourists and worker tourists. After controlling for unobserved country effects and endogeneity using random effects and Hausman-Taylor estimators, we find that the presence of a Confucius Institute continues to have a positive impact on the worker travel flows.

1.   Introduction

The travel and tourism industry is one of the fastest growing sectors in the world. From 1975 to 2000, international tourist arrivals grew at an average annual rate of 4.6 percent, compared to GDP growth of 3.5 percent (UNWTO, 2012).   More recently, global international travel arrivals have increased by 46 percent between 2000 and 2011. As a result, the travel and tourism industry directly contributed 2.8 percent to world GDP and accounted for 3.3 percent of world employment (WTTC, 2012a). In every region of the world, the travel and tourism industry directly sustains more jobs than all three industries, financial services, communications and mining (WTTC, 2012b).

One of the main driving forces behind international tourism is the culture of the destination country. Culture and tourism have increased their linkages over time as its impact on regional competitiveness is better understood (OECD, 2008). Cultural trips as a percentage of total international arrivals increased by 45 percent between 1995 and 2007 with cultural trips accounting for 40 percent of international tourism in 2007 (p. 21; OECD, 2008). France, United Kingdom, Germany and Spain have long-established organizations such as Alliance Française in 1883, the British Council in 1934, the Goethe Institut in 1951 and the Instituto Cervantes in 1991 to promote their language and culture. Recently, the Office of Chinese Language Council International, also known as Hanban, established the Confucius Institute (CI) in 2004. Its goal is to promote global knowledge of Chinese language and culture and to foster deeper ties between China and the rest of the world. As of August 2011, there are 353 CIs and 473 CI-established classrooms distributed over 104 countries and regions (Hanban, 2012).

The Chinese tourism industry has also seen tremendous growth. Between 2001 and 2011, inbound tourism to China increased by 25.15 percent (Chinese Statistical Yearbook, various issues). China ranked third (after France and the United States) in 2011 for the number of tourist arrivals and fourth for international tourism revenue (UNWTO, 2012). As a result, the direct contribution of the travel and tourism industry to China's GDP in 2011 was 2.6 percent (WTTC, 2012c).

This dramatic increase in travel to China begs the question on whether the establishment of the Confucius Institutes, by promoting Chinese culture and raising people's awareness in the world of China's reputation, has increased travel flows to China. This paper thus investigates whether the establishment of the Confucius Institutes has an impact on international travel to China. Results from this study can have significant policy implications since travel and tourism has been shown to have a real economic impact beyond its obvious contributions to GDP and employment by Anderson and Dalgaard (2011). They estimate that a one percent increase in travel intensity can raise total factor productivity and GDP per worker by 0.2 percent. China's efforts at increasing its "soft power" by enhancing cultural awareness and the role that CI can play in this endeavor has been discussed by Ding and Saunders (2006), Kurlantzick (2006), Hsiao and Yang (2008), Starr (2009) and Roasa (2012).[1] However, to the best of our knowledge, there is only one published study on the economic impact of CIs by Lien, Oh and Selmier

---

[1] "Soft power" is a term originated by Joseph Nye (1990, 2004). It describes the ability to raise awareness by means of diplomacy, international assistance and cultural exchanges rather than by such "hard" means such as military intervention or punitive economic measures. China's goals regarding soft power is evident from the keynote speech by Mr. Hu Jintao, President of China, to the 17th National Congress of the Communist Party of China (CPC) in 2007 which stressed the need to enhance Chinese culture "as part of the soft power of our country to better guarantee the people's basic cultural rights and interests."

(2012).[2] They investigate the impact of CI's on Chinese outbound trade and foreign direct investment flows and find that CI increase exports by 4 to 27 percent and FDI by 46 to 130 percent. Our objective in this paper is to examine the impact of CI's on inbound tourism flows.

We find that the presence of Confucius Institutes has a positive impact on Chinese inbound tourist flows. Using pooled OLS, we estimate that a Confucius Institute increases overall inbound tourism by 2.98 percent and business tourists and worker tourists by 2.65 and 3.75 percent, respectively. When we control for unobserved country effects and endogeneity using random effects and Hausman-Taylor estimators, we find that a new CI increases worker tourism by 1.13 to 1.24 percent.

The rest of the paper is organized as follows. Section 2 discusses the establishment and organization of the Confucius Institute.   Sections 3 and 4 describe the empirical model and data. The results are discussed in section 4 and conclusions are drawn in section 5.

2.   An Introduction to the Confucius Institute

China began establishing Confucius Institutes in foreign countries to spread Chinese cultural knowledge in 2004. Confucius Institute (CI) is a public institution and is a division of the Office of Chinese Language Council International (or Hanban). Hanban is affiliated with the Chinese Ministry of Education. Hanban's three primary functions are: (i) to make policies and development plans for promoting Chinese language globally; (ii) to support Chinese language programs at educational institutions in other countries; and (iii) to draft international Chinese teaching standards and develop and promote Chinese language (Hanban, 2012).

---

[2] In a related paper, Arita, Edmonds, Croix and Mak (2011) use a gravity model to estimate the impact of the Chinese government's Approved Destination Status policy on outbound tourism flows from China.

Although owned by Hanban, a CI needs to be hosted by a foreign partner organization. The startup funding for a CI is provided by Hanban. Currently, the startup fund is set at US$150,000. Subsequent annual operation funding is provided by Hanban with one-to-one matching fund from the host organization. The establishment of a CI follows a standardized procedure. A foreign organization, typically a university, that wants to host a CI submits a proposal to Hanban that demonstrates three 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 growth of the CI both financially and physically; and (iii) A partner organization in China has been pre-selected by the potential host organization for this endeavor. After the proposal is submitted, it normally takes at least a year to obtain the final approval from Hanban (if approved). Before a CI is officially functioning, there needs to be two agreements signed; one agreement between Hanban and the host organization and the second agreement between the host organization and the Chinese partner. Thus, the time span from initial proposal submission stage to the official functioning of the CI is approximately 18 months (Lien, Oh and Selmier, 2012).

The CI can take the form of a Confucius Institute or a Confucius Classroom. Confucius Institutes are newly built institutions in countries abroad that are built for the purpose of being a CI "executive institution" while Confucius Classrooms are CIs that are built into previously existing institutions, the majority of these being in University-sponsored institutions. Some are also reported as being in regional public school institutions, as well as private community organizations, but these are rare. The function of these CI's is to teach the Chinese language, train Chinese language instructors and provide Chinese language teaching resources; organize Chinese proficiency tests and Chinese teachers qualification authentication; provide information

and consulting services concerning China's education, culture, and the economy; and develop

study programs about modern China (Hanban, 2012).

3. The Gravity Model

The gravity model is one of the most successful empirical devices to explain international

trade patterns (Deardorff, 1998), migration flows (Karemera, Oguledo and Davis, 2000; Lewer

and Van den Berg, 2008) and tourist moves (Gil-Pareja, Llorca-Vivero and Martinez-Serrano,

2007a and 2007b; Keum, 2010; Eriyiğit, Kotil and Eryiğit, 2010; Anderson and Dalgaard, 2011).

In its simplest form, the gravity model predicts that the flow of goods, ideas and people depends

positively on the size of each location and negatively upon the distance:

$$X_{ij} = \beta_0 \frac{(Y_i)^{\beta_1} (Y_j)^{\beta_2}}{(distance_{ij})^{\beta_3}} \tag{1}$$

where X_{ij} is the flow between locations i and j, Y_i (Y_j) is the economic size of location i (j),

distance is the bilateral distance between i and j, and ($\beta_0, \beta_1, \beta_2, \beta_3$) are constants.

In this application, we are estimating the tourist flows from multiple departures i to a

single destination China j. As a result, X_{ij} is the number of tourists arriving in China from

country i. The economic size Y_i is the population of departing country i, while the economic

size Y_j is the population of China. The variable $distance_{ij}$ is the bilateral distance between

departure country i and China j.

Taking logarithms of the gravity model equation (1) and applying it to a panel data setting,

we get:

$$\ln(tourist_{ijt}) = \beta_0 + \beta_1 \ln(POP_{it}) + \beta_2 \ln(POP_{jt}) + \beta_3 \ln(distance_{ij}) + \varepsilon_{ijt} \tag{2}$$

where $\beta_0, \beta_1, \beta_2$ and β_3 are coefficients to be estimated. The error term ε_{ijt} captures any other shocks and chance events that may affect bilateral tourist flows into China. Equation (2) is the core gravity model equation where bilateral tourism flows is predicted to be a positive function of population and a negative function of distance.

We include some additional variables to capture demand differences of tourism to China from the departing countries i. First, we use real GDP per person to measure the wealth of country i. Assuming that international tourism is a normal good, we expect that the coefficient for real GDP per person to be positive. Second, we use the ratio of the purchasing power index (PPP) conversion to measure the price differences between China and departure country i. Bergstrand (1985) and others have shown that the inclusion of prices for origin and destination economies is necessary to avoid misspecification bias. Third, we use the geographic remoteness of country i excluding China to measure the viability of alternative destinations. Fourth, we use a Chinese language dummy variable to represent differences in communication costs. Lastly, we include the number of Confucius Institutes of the departure country.

We add these additional variables to equation (2) to get our estimating equation:

$$\ln(tourist_{ijt}) = \beta_0 + \beta_1 \ln(POP_{it}) + \beta_3 \ln(distance_{ij}) + \beta_4 \ln(Y_{it}/POP_{it}) +$$
$$\beta_5 \ln(relativePPP_{it}) + \beta_6 \ln(remoteness_i) + \beta_7 Language_i +$$
$$\beta_8 Confucius\ Institutes_{it} + TIME_t + \alpha_i + u_{ijt} \qquad (3)$$

There are two important points to mention. First, the temporal changes in Chinese population and GDP per person are captured by the time dummies, $TIME_t$. Second, potential unobserved demand differences between destination countries are captured by the individual effects α_i.

4.   Data

The data set comprises of China's inbound tourist flows, macroeconomic data, and the number of Confucius Institutes for 31 countries from 2004 to 2010.   The countries, listed in Appendix A, are a balance of Western OECD countries and developing Asian countries. The number of inbound tourists by country origin and purpose are taken from the Chinese Statistical Yearbook records. We use total tourist flows and the five sub-categories (Business, Leisure, Friends and Family, Workers, and Others) to measure our dependent variable. The data for population, real GDP per person, and the PPP conversion factors are taken from the World Development Indicators (2012). The number of Confucius Institutes is collected from the official website of Hanban (2012). The bilateral distance and Chinese language dummy variable were obtained from Mayer and Zignago (2012).

Table 1 provides the summary statistics. We see that the average number of inbound tourists across the 31 countries is 0.676 million. The maximum is 4.776 million whereas the minimum is 21.7 thousand. The number of tourists varies widely with a standard deviation of 0.970 million. Among the sub-categories, leisure tourism makes up the largest group (49.5%). Business trips makes up the second largest group (23.5%). Worker tourism accounts for 8.97%. Friends and Family visits make up the smallest group (1.00%). During the same period, the average number of Confucius Institutes is slightly less than three. The United States has the maximum number of Confucius Institutes at 52 in 2010. A few countries in our sample like Malaysia, Israel and Tunisia do not have any Confucius Institutes.

5. **Empirical Results**

We first estimate equation (3) using pooled OLS with fixed time effects and clustered standard errors. Table 2 presents the results for total tourism and the five sub-components. The coefficient signs and significance are as expected. The core variables of the gravity model, geographical distance to China and population, have the expected signs in all cases. Specifically, a one percent increase in distance reduces the total number of tourists by 1.55 percent whereas a one percent increase in population increases the total number of tourists by 0.53 percent, respectively. We also find that a 1 percent increase in GDP per person increases the total number of tourists by 0.80 percent. All the coefficients are significant at the one percent level. Other significant factors that explain total tourism includes knowing the Chinese language and remoteness. As expected, a country in which Chinese is one of the main spoken languages has more outbound tourists to China. A more remote country has fewer tourists travelling to other countries including China. On the other hand, relative PPP has no impact on total tourism.

For our main interest, the presence of Confucius Institutes has positive and significant effect on total tourism, business tourism, and worker tourism. The point estimates imply that an additional CI leads to a 3.02 percent increase in total tourism, 2.69 percent increase in business tourism, and 3.82 percent increase in workers tourism from the host country. The presence of CIs has positive but statistically insignificant effects on leisure and other tourisms. As language and culture barriers are more important for business and worker tourism than other tourisms, better familiarity with China due to the CI program produces more significant in these two types of tourisms.

Pooled OLS is often subjected to omitted variable bias. We therefore estimate equation (3) using either fixed effects (FE) or random effects (RE) in Table 3. To control for unobserved

differences, FE includes a set of country-specific dummy variables, while RE adds country-specific random variables. Although potentially more efficient, RE is consistent only if the random effects are orthogonal to the independent variables. We test this assumption using a Hausman test and report the results at the bottom. The results find that RE is warranted for leisure, friends & family, workers and other tourist flows; but not for total and business.

Table 3 shows that CI remains an important factor for worker tourism (in fact, the statistical significance is raised to the one percent level). A new CI leads to 1.23 percent increase in worker tourism. At the same time, a new CI has no significant impact on total tourism flows nor on business and on worker flows.

Lastly, we consider Hausman-Taylor estimator that allows CI (and real GDP per person) to be correlated with the random effects. Table 4 presents the results. Now, CI has a positive effect only for worker tourism at the 10 percent significance level. A new CI leads to 1.11 percent increase in worker flows.

The above results indicate that the positive effects of CI decrease as the estimation method becomes more robust. Nevertheless, we are able to confirm a significantly positive effect of CI on worker tourism. The results find that a new CI will increase inbound tourism flows by 1.11 to 1.25 percent.

6.   Concluding Remarks

Travel to China has increased substantively over the past decade along with a rapid growth in the number of Confucius Institutes that were first established in 2004. Since one of the goals of the Confucius Institute is to raise awareness of China's culture and language which has

an impact on tourists' desire to visit a country, we investigate the impact that Confucius Institutes have on inbound arrivals of tourists into China.

Tourists entering China are categorized into five groups (Business, Leisure, Friends and Family, Workers and Others) based on their purpose of travel. The pooled OLS estimates show that the presence of Confucius Institutes has a significant impact on overall inbound tourist flows as well as for two sub-groups of tourists: business and workers. When we control for unobserved country effects and endogeneity, the random effects and Hausman-Taylor estimators find that a new CI continues to have a significant positive impact on worker flows.

Our study thus provides empirical evidence for the positive spillover effects of the Confucius Institute that have been anecdotally discussed in the literature (Li, Mirmirani and Ilaqua, 2009). We find that the Confucius Institutes help tourists that travel for working in China. As China's economy grows it will be necessary for more business to be conducted in China and the growth of Confucius Institutes, by reducing language handicaps and increasing the understanding of China's culture internationally, facilitates the growth of business and worker tourist flows to China. These effects may take place after a longer period examined in this paper.

References

Arita, Shawn, Christopher Edmonds, Sumner La Croix and James Mak, 2011. "Impact of Approved Destination Status on Chinese Travel Abroad: An Econometric Analysis," *Tourism Economics,* 17(5), pp 983-996.

Anderson, Thomas B. and Carl-Johan Dalgaard, 2011. "Flows of People, Flows of Ideas and Inequality of Nations," *Journal of Economic Growth*, 16(1), pp. 1-32.

Bergstrand, Jeffrey, 1985. "The Gravity Equation in International Trade: Some Microeconomic Foundations and Empirical Evidence," *Review of Economics and Statistics*, 67(3), pp. 474-81.

Ding, Sheng and Robert. A. Saunders, 2006. "Talking Up China: An Analysis of China's Rising Cultural Power and Global Promotion of the Chinese Language," *East Asia*, 23(2), pp. 3-33.

Eriyiğit, Hehmet, Erdoğan Kotil and Resul Eryiğit, 2010. "Factors affecting International Tourism Flows to Turkey: A Gravity Model Approach," *Tourism Economics,* 16(3), pp 585-595.

Gil-Pareja, Salvador, Rachael Llorca-Vivero and José Antonio Martínez-Serrano, 2007a. "The Impact of Embassies and Consulates on Tourism," *Tourism Management*, 28(2), pp. 355-360.

Gil-Pareja, Salvador, Rachael Llorca-Vivero and José Antonio Martínez-Serrano, 2007b. "The Effects of EMU on Tourism," *Review of International Economics*, 15(2), pp. 302-312.

Hanban, 2012. Confucius Institute Online. Available at http://english.hanban.org/node_7719.htm and http://english.hanban.org/node_7577.htm. Accessed December 2, 2012.

Hsiao, Michael and Alan Yang, 2008. "Transformations in China's Soft Power toward ASEAN. *China Brief*, 8(22), pp 11-15. Available at http://www.jamestown.org/uploads/media/cb_008_03.pdf. Accessed February 10, 2013.

Karemera, David, Victor Oguledo and Bobby Davis, 2000. "A Gravity Model Analysis of International Migration to North America," *Applied Economics*, 32(13), pp 1745-1755.

Keum, Kiyong, 2010. "Tourism Flows and Trade Theory: A Panel Data Analysis with the Gravity Model," *Annals of Regional Science*, 44(3), pp 541-557.

Kurlantzick, Joshua, 2006. "China's Charm: Implications of Chinese Soft Power," Policy Brief Number 47, Carnegie Endowment of International Peace.

Lewer, Joshua J. and Hendrik Van den Berg, 2008. "A Gravity Model of Immigration," *Economic Letters*, 99(1), pp. 164-167.

Li, Hsi Chang, Sam Mirmirani and Joseph A. Ilaqua, 2009. "Confucius Institutes: Distributed

Leadership and Knowledge Sharing in a Worldwide Network," *The Learning Organization,* 16(1), pp. 469-482.

Lien, Donald, Chang Hoon Oh and W. Travis Selmier, 2012. "Confucius Institute Effects on China's Trade and FDI: Isn't it Delightful when Folks afar Study Hanyu?" *International Review of Economics & Finance*, 21(1), pp. 147-155.

Mayer, Thierry, Zignago, Soledad, 2012. *CEPII Bilateral Data*. Available at http://www.cepii.fr/anglaisgraph/bdd/distances.htm. Accessed September 1, 2012.

Nye, Joseph, 1990. *Bound to Lead: The Changing Nature of American Power*. New York: Basic Books.

Nye, Joseph, 2004. *Soft Power: The Means to Success in World Politics.* New York: Public Affairs.

Organization of Economic Co-Operation and Development (OECD), 2008. "Roles and Impact of Culture and Tourism on Attractiveness," in *The Impact of Culture on Tourism*, Paris: OECD Publishing. doi: 10.1787/9789264040731-en

Roasa, Dustin, 2012. "China's Soft Power Surge," *Foreign Policy*. Available at http://www.foreignpolicy.com/articles/2012/11/18/chinas_soft_power_surge . Accessed January 18, 2013.

Starr, Don, 2009. "Chinese Language Education in Europe: The Confucius Institutes," *European Journal of Education*, 44(1), pp. 65-82.

United Nations World Trade Organization (UNWTO), 2012.   *UNWTO Highlights 2012*. Available at http://dtxtq4w60xqpw.cloudfront.net/sites/all/files/docpdf/unwtohighlights12enlr_1.pdf. Accessed January 13, 2013.

World Development Indicators (WDI), 2012. Washington, DC: World Bank.

World Travel and Tourism Council (WTTC). 2012a. *Travel and Tourism Economic Impact 2012*. Available at http://www.wttc.org/site_media/uploads/downloads/world2012.pdf. Accessed January 13, 2013.

World Travel and Tourism Council (WTTC). 2012b. *Travel and Tourism Economic Impact 2012*. Available at http://www.wttc.org/site_media/uploads/downloads/WTTC_Sectors_Summary_Global.pdf . Accessed February 10, 2013.

World Travel and Tourism Council (WTTC). 2012c. *Travel and Tourism Economic Impact 2012*. Available at http://www.wttc.org/site_media/uploads/downloads/china2012.pdf. Accessed January 18, 2013.

Table 1
Summary Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Total Tourism to China	676,487	970,743	21,726	4,776,752
Business Tourism to China	158,933	277,197	1,835	1,572,061
Leisure Tourism to China	335,196	493,577	2,608	2,508,168
Friends and Family Tourism to China	5,800	13,126	0	90,103
Worker Tourism to China	60,688	94,750	600	483,200
Other Tourism to China	115,851	218,435	632	1,507,900
Number of Confucius Institutes	2.835	5.990	0	52
Log of real GDP per person	9.569	1.114	6.860	10.862
Log of population	17.359	1.432	14.738	20.926
Log of relative PPP	0.706	-2.356	1.785	7.426
Log of bilateral Distance to China	8.583	0.634	6.862	9.431
Log of remoteness excluding China	-8.956	-0.250	-9.533	8.650
Dummy for Chinese language	0.068	0.252	0	1

Table 2
OLS Estimates of Chinese In-bound Tourism Flows

VARIABLES	(1) Total	(2) Business	(3) Leisure	(4) Friends & Family	(5) Workers	(6) Other
Number of Confucius Institutes	0.0298**	0.0265**	0.0241	0.0148	0.0375**	0.0199
	(0.0124)	(0.0114)	(0.0160)	(0.0156)	(0.0159)	(0.0133)
Log of real GDP per person	0.8014***	0.9711***	0.9432***	1.2451***	0.3741	0.9471***
	(0.1414)	(0.1302)	(0.1320)	(0.2238)	(0.2266)	(0.2044)
Log of population	0.5321***	0.6162***	0.6559***	0.7567***	0.4965***	0.4698***
	(0.1019)	(0.0859)	(0.0973)	(0.1248)	(0.1051)	(0.1666)
Log of relative PPP	-0.0252	-0.0939	0.0059	-0.2431	-0.0158	-0.0813
	(0.0960)	(0.0740)	(0.1184)	(0.2407)	(0.1395)	(0.0926)
Log of bilateral Distance to China	-1.5476***	-1.6664***	-1.1730***	-2.2227***	-1.6491***	-1.9687***
	(0.3892)	(0.2610)	(0.4042)	(0.7826)	(0.4961)	(0.5387)
Log of remoteness excluding China	-1.1421*	-0.5906	-1.2548**	-3.5245***	-0.8122	-1.5606***
	(0.5622)	(0.6147)	(0.6059)	(0.6708)	(0.8166)	(0.4037)
Dummy for Chinese language	0.9190**	0.7156**	1.3183***	1.5163*	0.8679*	0.6576
	(0.3350)	(0.3493)	(0.3939)	(0.8909)	(0.4317)	(0.4289)
Observations	206	206	206	206	206	206
Number of countries	31	31	31	31	31	31
R-squared	0.764	0.790	0.756	0.765	0.604	0.724
Time Period	2004-10	2004-10	2004-10	2004-10	2004-10	2004-10
State Random Effects	NO	NO	NO	NO	NO	NO
Year Fixed Effects	YES	YES	YES	YES	YES	YES

The dependent variable is ln(tourism) where the definition of tourism is shown on top. Robust standard errors are in parentheses where
***p<0.01, **p<0.05, *p<0.10. Fixed time effects are not shown.

Table 3
Fixed- and Random-Effects Estimates of Chinese In-bound Tourism Flows

VARIABLES	(1) Total	(2) Business	(3) Leisure	(4) Friends & Family	(5) Workers	(6) Other
Number of Confucius Institutes	-0.0015	0.0001	-0.0022	0.0040	0.0123***	0.0028
	(0.0017)	(0.0047)	(0.0049)	(0.0187)	(0.0044)	(0.0066)
Log of real GDP per person	0.4339**	0.0764	0.8959***	1.2861***	0.2942	0.9674***
	(0.2168)	(0.5851)	(0.1083)	(0.2208)	(0.1836)	(0.1988)
Log of population	0.5295	-0.7406	0.6892***	0.8083***	0.5376***	0.5140***
	(0.4237)	(1.1431)	(0.1086)	(0.1199)	(0.1086)	(0.1494)
Log of relative PPP	-0.3238***	-1.0326***	-0.0618	-0.3053	-0.1750	-0.1089
	(0.1095)	(0.2953)	(0.1603)	(0.2673)	(0.1703)	(0.1006)
Log of bilateral Distance to China			-1.3327***	-2.4560***	-2.0279***	-2.0717***
			(0.4824)	(0.8602)	(0.5536)	(0.5633)
Log of remoteness excluding China			-1.4345**	-3.7058***	-1.2240	-1.6883***
			(0.6235)	(0.7171)	(0.7465)	(0.4586)
Dummy for Chinese language			1.1757***	1.3969	0.5207	0.6124
			(0.3970)	(0.9157)	(0.4487)	(0.4603)
Hausman Test Statistic	19.55	34.11	5.29	13.61	6.48	1.83
	(0.0338)	(0.0002)	(0.8709)	(0.1915)	(0.7773)	(0.9975)
Observations	206	206	206	206	206	206
Number of countries	31	31	31	31	31	31
Time Period	2004-10	2004-10	2004-10	2004-10	2004-10	2004-10
State Effects	fixed	fixed	random	random	random	random
Year Fixed Effects	YES	YES	YES	YES	YES	YES

The dependent variable is ln(tourism) where the definition of tourism is shown on top. Robust standard errors are in parentheses where
***p<0.01, **p<0.05, *p<0.10. Fixed time effects are not shown.

Table 4
Hausman-Taylor Estimates of Chinese In-bound Tourism Flows

VARIABLES	(1) Total	(2) Business	(3) Leisure	(4) Friends & Family	(5) Workers	(6) Other
Number of Confucius Institutes	-0.0010	0.0015	-0.0035	0.0052	0.0112**	0.0020
	(0.0017)	(0.0044)	(0.0038)	(0.0156)	(0.0057)	(0.0055)
Log of real GDP per person	0.5416***	-0.2135	0.6015**	4.9190***	0.2397	0.9815**
	(0.1518)	(0.4050)	(0.3065)	(1.5829)	(0.3585)	(0.3854)
Log of population	0.5808***	0.5077	0.6386***	2.5241*	0.5526***	0.5158**
	(0.1120)	(0.3119)	(0.1939)	(1.4089)	(0.1752)	(0.2113)
Log of relative PPP	-0.2876***	-0.7930***	-0.0618	-2.3030***	-0.2736*	-0.1202
	(0.0720)	(0.1938)	(0.1395)	(0.7764)	(0.1500)	(0.1675)
Log of bilateral Distance to China	-2.0268***	-2.5027**	-1.0588	-11.0808**	-2.2341***	-2.1095***
	(0.3752)	(1.0348)	(0.6691)	(4.5346)	(0.6227)	(0.7436)
Log of remoteness excluding China	-1.7593**	-1.9738	-1.3778	-9.0489	-1.4560	-1.7317
	(0.6896)	(1.9310)	(1.1760)	(8.9570)	(1.0499)	(1.2713)
Dummy for Chinese language	0.4263	-0.3992	1.3552	-5.0310	0.3082	0.5691
	(0.7131)	(1.9945)	(1.2200)	(9.2082)	(1.0898)	(1.3203)
Observations	206	206	206	206	206	206
Number of countries	31	31	31	31	31	31
Time Period	2004-10	2004-10	2004-10	2004-10	2004-10	2004-10
State Effects	random	random	random	random	random	random
Year Fixed Effects	YES	YES	YES	YES	YES	YES

The dependent variable is ln(tourism) where the definition of tourism is shown on top. Robust standard errors are in parentheses where ***p<0.01, **p<0.05, *p<0.10. Fixed time effects are not shown.

Appendix A
List of Countries and Number of Confucius Institutes in 2010

AUSTRALIA	5	NEPAL	1
AUSTRIA	1	NETHERLANDS	1
BELGIUM	3	NEW ZEALAND	0
CANADA	5	NORWAY	0
FRANCE	6	PAKISTAN	0
GERMANY, UNIFIED	8	PHILIPPINES	2
INDIA	1	PORTUGAL	2
INDONESIA	1	RUSSIA	11
ITALY	7	SINGAPORE	1
JAPAN	10	SPAIN	3
KAZAKHSTAN	2	SRI LANKA	1
KOREA, SOUTH	14	SWEDEN	1
KYRGYZ REPUBLIC	2	THAILAND	10
MALAYSIA	0	UNITED KINGDOM	10
MEXICO	3	UNITED STATES	52
MONGOLIA	1		