

The Political Economy of Chinese Foreign Direct Investment in Developing Areas

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Recent studies have hypothesized that the Chinese state has sought to use outward flows of foreign direct investment (FDI) to Latin America and Africa in order to promote broad national interests, including securing China's access to oil and other natural resources, and pressuring states to abandon diplomatic ties with Taiwan. To date, however, there has been little systematic empirical study of the influence of these factors on Chinese FDI. In this study, we attempt to fill this gap in the literature. Utilizing a cross-sectional time-series data set for 66 countries for the period of 2003–2010, we investigate the effects of various economic and political variables on Chinese FDI in Latin America and Africa. We find that Chinese FDI is influenced by trade flows and natural resources in host economies, including oil resources and ores and metals, while also being directed to markets with lower per capita income. In addition, the study adds to the prior literature by demonstrating empirically that Chinese FDI flows are negatively associated with recipients who maintain diplomatic recognition of Taiwan. The analysis also suggests that, with the exception of natural resources (oil), there is little overlap in the determinants of Chinese and US FDI.

Since the late 1990s, flows of Chinese outward foreign direct investment (FDI) have exhibited strong growth. Although Chinese FDI initially concentrated in the markets of advanced states, during the past decade Chinese firms have also expanded their operations throughout the developing world (Wang 2002; Deng 2009). Chinese FDI has been significant in Asia, but parts of Latin America and Africa have also received notable inflows of direct investment since the year 2000 (Deng 2007; Kragelund and van Dijk 2009; Dussel Peters 2012; Gonzalez-Vicente 2012). Between 2003 and 2010, the average annual change in Chinese FDI in Africa and Latin America was 80% and 154%, respectively.¹ Firms not only initiated new projects in Brazil's energy and Zambia's mining sectors, but they have also invested in manufacturing and consumer projects in Mexico, Brazil, South Africa, Uruguay, and several other countries.

¹To be sure, although there has been some variation in certain years, the general trend in FDI flows has been upward in Latin America and Africa. Figures calculated with data from the National Bureau of Statistics (various years). The estimate excludes Chinese FDI flows to tax havens or offshore centers in the Caribbean (Cayman Islands and British Virgin Islands) or Panama that facilitate inflows of Chinese FDI that are then directed back to China (so-called round tripping FDI flows). Because "round trip" FDI flows are not destined for the host market, we follow the convention and exclude these countries from the data set (see Xiao 2004).

[Correction added on 27 March 2015, after first online publication: The first statement of the Conclusion has been corrected from 'to improve understanding of Chinese FDI flows to Latin America and America' to 'to improve understanding of Chinese FDI flows to Latin America and Africa'.]

Studying the investment behavior of Chinese firms may help to improve prior theoretical models in international political economy and foreign policy analysis. Because existing models of FDI (Dunning 1988; Graham 1994) are frequently dominated by theories that refer to firms in advanced economies, it is unclear whether these models apply well to MNCs in newly industrializing states, including China. In this context, a study of Chinese firms can yield insights into how differences in the home market of the firm shape its pattern of outward direct investment. In addition, an analysis of Chinese FDI also refines understanding of the broader policy implications of the internationalization of Chinese firms. The outward investment of Chinese firms raises the potential for increased competition for influence among China, the United States, Japan and other states (for example, Taiwan) in Latin America and Africa. Indeed, Chinese coinvestment projects in the oil sectors in selected countries have been scrutinized by policymakers in the United States. Likewise, policymakers have expressed concern about the potential of Chinese FDI to substitute for trade from the United States, Japan, Taiwan, or other states to Latin America or Africa (van Dijk 2009b; Gallagher and Porzecanski 2010). In particular, Chinese investment in selected Latin American or African economies may result in the loss of market share for US (or other multinational) firms that export to, but do not presently invest in, those markets.²

Yet, despite the potential benefits of a focus on Chinese FDI, the extant research on Latin America and Africa has been limited. Recent scholarship has illuminated the sources of worldwide and US FDI flows to Latin America and other regions (Asiedu 2004; Biglaiser and deRouen 2006; Montero 2008; Ruiz and Pozo 2008; Aguiar, Aguiar-Conraria, Gulamhussen, and Magalhães 2012; Blanco 2012; Jensen, Biglaiser, Li, Malesky, Pinto, Pinto, and Staats 2012; Staats and Biglaiser 2012), but there has been little quantitative research on Chinese FDI in Latin America and Africa. Moreover, the existing research on Chinese FDI in developing areas has tended to focus on economic determinants of Chinese overseas investment (for example, Broadman 2007; Deng 2007, 2009; Chen and Lin 2008; Athreye and Kapur 2009; Kragelund and van Dijk 2009), while largely ignoring the potential influence of foreign policy considerations or political conditions in host countries (see Gonzalez-Vicente 2012).³

In this study, we attempt to fill this gap in the literature. We investigate the effects of different determinants on Chinese FDI flows with a data set that covers 66 countries in Latin America and Africa in the period of 2003–2010. The study begins with a review of the extant literature on outward FDI from China. After this, we discuss the data set and methods, followed by a presentation of the main findings of the statistical analysis. In the Conclusion, we also present a brief analysis of US FDI and compare the findings to the model of Chinese FDI.

Theoretical Approach

Scholars often employ the OLI model,⁴ or “eclectic” theory in cross-national studies of FDI (Dunning 1980, 1988; see also Graham 1994; Jensen et al. 2012). The OLI framework emphasizes that a firm’s decision to internationalize reflects an

²Chinese and US firms may have different objectives when they invest in Latin America and Africa. Nevertheless, the *effects* of Chinese FDI in the region may generate increased competition with US firms through trade substitution. To this extent, Chinese FDI has the potential to increase competition and rivalry, even if there is little overlap in the FDI behavior of Chinese and US firms.

³Buckley, Clegg, Cross, Liu, Voss, and Zheng (2007) examined political risk on Chinese FDI flows, although they did not distinguish among different types of instability and pooled observations of Chinese FDI from developing- and developed-country markets. More recently, Gonzalez-Vicente (2012) explores some policy factors in a qualitative study.

⁴OLI refers to advantages associated with ownership, location, and internalization. The theory is “eclectic” by combining behavioral and neoclassical views of the firm (see Graham 1994).

assessment that foreign investment will yield benefits over potential competitors, domestic or multinational. Licensing a foreign partner to produce (or exporting) is an alternative to FDI, but if transaction costs are too high, then firms tend to choose FDI as the preferred avenue to gaining access to a foreign market (Caves 1982; Dunning 1995).

Given differences in China's economic and institutional environment, however, recent scholarship suggests the need to modify the OLI framework in order to understand Chinese outward FDI behavior (see Dunning and Narula 1998:379–420; Wang 2002). In particular, researchers have suggested that one should focus on the influence of the Chinese state on FDI. As a variant of the East Asian model of developmental states (see Johnson 1982; Evans 1995; So 2009), the Chinese state plays a key role in the economic decision making of firms engaged in the world economy. So (2009) has argued persuasively that the Chinese state has sufficient capacity and intent to shape FDI decisions in particular.⁵ Various Chinese ministries must approve outward FDI (Li 2010:110, 118, 240), and, as Deng (2007) notes, bureaucrats (for example, officials in the State Administration for Foreign Exchange, or National Development and Reform Commission) may use regulatory power or informal ties with state-owned enterprises to emphasize certain national goals.⁶ In this way, FDI behavior may come to reflect national interests that complement more parochial firm-level objectives. Scholarship in this tradition notes that state guidance of FDI might be intended to ensure adequate supplies of energy, to promote Chinese trade, or to facilitate the acquisition of foreign technology (Dunning and Narula 1998; Athreye and Kapur 2009; Kragelund and van Dijk 2009; Gonzalez-Vicente 2012).

Location Factors: Economic Influences

Having discussed the general literature on the internationalization of Chinese firms, we turn to a review of the economic influences in host markets that might be associated with Chinese FDI. As noted, a number of studies hypothesize that the Chinese state guides firms to invest in countries that possess strategically important natural resources. Broadman (2007) suggests that although Chinese FDI was associated with infrastructure projects during the initial phases of outward FDI, a large part of more recent Chinese FDI concentrates in host countries with abundant supplies of oil and natural resources. This strategy has been facilitated by the Chinese state's "Going Global" policy, in which the state guides firms to "...invest abroad to seek inputs in support of the country's [China's] fast-paced economic development..." (Broadman 2007:98; see also Kurlantzick 2007:90–92). Voss (2011:63) and García (2013:56) note that government ministries have employed various tools to achieve this goal, including the use of soft loans to Chinese mining firms that are considering investment in foreign mining sectors, or requiring regulatory approval for the use of foreign exchange in outward FDI.⁷ Studying the geographical diversification of Chinese FDI in developing areas, Wu and Chen (2001) and Wang (2002) find an association between natural resources and Chinese FDI. Palacios (2008 and see García 2013) and van Dijk (2009a:10) also observe that Chinese firms are engaged in energy production and exports in Angola, Ecuador, Peru, and Sudan, while firms are moving to tap reserves in Nigeria, Venezuela, Brazil,

⁵China's state varies from the state in Japan and South Korea in that many managers in state-owned enterprises in China have significant entrepreneurial experience in the private sector. For this reason, there are more vertical ties among bureaucrats and managers in China in comparison with the pattern extant in Japan (So 2009:57–61).

⁶For examples of state guidance involving the state China Investment Corporation in certain outward FDI projects, see Li (2010:110).

⁷García (2013:37, 56–57) provides specific examples of the involvement of the Chinese state in outward FDI in the mining sector in Latin America, including the state's use of soft loans to firms. Bastholm and Kragelund (2009) also provide evidence that the Chinese state guided FDI to Zambia's copper sector.

and Bolivia. Similarly, Gonzalez-Vicente (2012), Kotschwar, Moran, and Muir (2011), and Bastholm and Kragelund (2009) note that Chinese FDI has specifically sought mineral resources in selected Latin American and African economies, and most visibly in Peru and Zambia. Given that prior research has found a positive association between inflows of Chinese FDI and natural resource abundance in host economies, one might expect that Chinese direct investment in Latin America and Africa exhibits a similar pattern (Buckley et al. 2007; Deng 2007, 2009).

Chinese FDI may also be market oriented. Certainly, evidence from case studies indicates that state officials have sought to guide firms to establish a close connection between trade and market-oriented FDI (for examples, see van Dijk 2009b; Voss 2011:94–95). Although trade may substitute for FDI, Chinese exports prior to FDI may allow firms to gain a presence in the host country's domestic market, followed by new investment that establishes branch operations for additional sales in the host market. Some empirical studies have found that Chinese trade is a precursor to Chinese FDI in Africa, Latin America, and other developing areas (Broadman 2007; Chen and Lin 2008; Estrella Tolentino 2011; Voss 2011; Jenkins and de Freitas Barbosa 2012). Similarly, if firms seek access to consumers through FDI, host countries with market potential might induce higher levels of Chinese FDI, all things being equal. Buckley et al. (2007) and Deng (2007) found a positive relationship between market size—as measured by real GDP per capita—and Chinese FDI in small samples that included developing countries. However, it remains unclear whether market wealth is positively associated with Chinese FDI across countries in specific regions. Indeed, some studies have suggested that the state may guide market-oriented FDI to host countries with lower incomes because competition from other firms, and entry barriers, are fewer in developing economies of modest income (Li 2010:31–33; Ye, Xu, Zhao, and Wei 2011).⁸ In addition, high levels of inflation in the host country may also be a broad gauge of market volatility (and therefore a disincentive) for multinational corporations that employ FDI for gaining access to the domestic market (Tuman and Emmert 2004).

Location Factors: Political Influences

The literature on FDI also hypothesizes that political conditions in the host country may have an effect on investment flows. Recent scholarship has found that firms gravitate to environments that protect their property rights or that offer macroeconomic stability (Tuman and Emmert 2004; Biglaiser and deRouen 2006; Montero 2008; Tuman 2009). However, depending upon the national origin of the firm, managers may appraise risk factors in the host country in different ways. Deng (2009) draws attention to the institutional environment in China and its potential influence on the process of risk appraisal in potential host countries. The political regime in China, which can be described as a one-party authoritarian regime, places a high value on domestic political stability and incremental change. Taking into account the involvement of government ministries that guide outward FDI, one might hypothesize that firms will be driven to avoid political risk in the recipient, preferring countries that are not beset by widespread political unrest.⁹ Thus far, research on this hypothesis has been mixed. Buckley et al. (2007)

⁸Certainly, in its initial phases, market-oriented Chinese FDI and trade was organized around low-value-added products in economies with modest incomes. However, moving forward, Chinese firms may be motivated to invest in developing-country markets in order to acquire new technology and managerial skills, which can be transferred back to China (Dussel Peters 2012:106). Very recent Chinese involvement in aerospace or manufacturing in some Latin American or African markets, including Brazil, South Africa, or Mexico, may reflect this goal and be suggestive of future trends in FDI.

⁹Given that FDI is influenced by the state, firms might expect that the Chinese state will cover losses associated with risk factors in the host market (that is, a “moral hazard” associated with risk propensity). If true, then Chinese firms may ignore political risk in the host market.

found that Chinese FDI is associated with higher levels of political risk, but they attribute the finding to differences between developed and developing countries in their statistical sample. In developing countries, Chinese firms may rely on strong ties between the Chinese state and the host country government to protect their interests (Buckley et al. 2007). In this context, bilateral relations between China and the host country might compensate for higher levels of domestic political instability in the host. Given the importance of social networks within China's business environment, it is also possible that Chinese firms engaged in outward FDI prefer hosts that allow them informal avenues (as opposed to legal channels) to protect their assets (Kurlantzick 2007:89–90).¹⁰

Finally, prior research has speculated that the Chinese state has pursued certain foreign policy objectives with sovereign debt purchases and FDI. In particular, Erickson and Chen (2007) and Zhu (2013) have argued that China uses foreign aid, purchase of sovereign debt, and FDI as mechanisms to influence Latin American states that continue to offer diplomatic recognition to Taiwan. Similarly, Lafurgue (2005) and Renard (2011) have suggested that in Africa, China has insisted that ending diplomatic recognition of Taiwan is a precondition to establishment of commercial ties, aid, and FDI. Following this line of reasoning, one might expect China to punish Latin American or African states that recognize Taiwan with less or no FDI, all things being equal.

Data and Methods

The dependent variable in this study is real (inflation adjusted) net Chinese FDI to each host country for each year. We normalize the dependent variable by employing the natural log of Chinese net FDI (in constant 2005 US millions of dollars) as the measure.¹¹ The data for nominal Chinese FDI were obtained from the National Bureau of Statistics (various years), while data for China's consumer price index for conversion to constant dollars (base year, 2005) are drawn from the World Bank (various years). As Cheng and Ma (2007) note, historically Chinese outward FDI figures had numerous coverage gaps and represented a serious undercount of the data. After 2001, however, China's monetary authorities adopted a common IMF standard for the definitions of FDI and improved FDI reporting. As such, we follow Cheng and Ma's (2007) advice and confine the analysis to the years 2002–2010 (the first year of observations for the dependent variable is 2003, while observations for 2002 are employed for the lagged dependent variable to address serial correlation).¹² The data set includes 66 countries¹³ from Latin America and Africa over an 8-year period.

¹⁰Staats and Biglaiser (2012) find evidence that strong legal institutions have an influence on FDI. Because their study focused on US and worldwide FDI flows, it is unclear whether their findings may be generalized to multinational firms that are based in emerging economies, including China.

¹¹We employ an additive constant for all observations to address log transformation of data with negative and zero values. This technique is also used for all other covariates that are logged and for which there are zero or negative values (for example, proven oil reserves).

¹²The data for 2002 were cross-checked with figures reported in the UNCTAD Investment Country Profiles (UNCTAD various years).

¹³The Latin American countries (22) in the data set include Argentina, Belize, Bolivia, Brazil, Chile, Colombia, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Jamaica, Mexico, Nicaragua, Paraguay, Peru, Surinam, Uruguay, and Venezuela. The African (sub-Saharan and North African) countries (44) in the data set include Algeria, Angola, Benin, Botswana, Cameroon, Cape Verde, Chad, Dem. Republic of Congo, Congo, Cote d'Ivoire (Ivory Coast), Djibouti, Egypt, Equatorial Guinea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Kenya, Lesotho, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mauritius, Morocco, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Seychelles, Sierra Leone, South Africa, Sudan, Tanzania, Togo, Tunisia, Uganda, Zambia, and Zimbabwe. We follow the convention in the literature and exclude tax havens, for example, Cayman Island, Bahamas, British Virgin Islands, St. Kitts, and Panama, to avoid measurement of "round tripping" FDI.

To measure the influence of China's strategic economic interests on inflows of Chinese FDI, we employ several covariates. The first is the natural log of real total trade (constant 2005 millions of US dollars) between the host country and China, with a 1-year lag.¹⁴ The trade and consumer price index data are collected from the International Monetary Fund (various years) and the World Bank (various years). In addition, to gauge the effects of China's dependence on oil imports, we include a covariate for the proven oil reserves (the natural log of billions of barrels of proven reserves) in each recipient, lagged by one year. We constructed this variable with raw data obtained from the US Energy Information Agency (various years). As an additional control for the influence of China's dependence on natural resource exports, we include a measure of ore and metals exports in the recipient (as a percent of the recipient's total merchandise exports), lagged by one year. The data are taken from the World Bank (various years).

To measure the influence of market potential, we use the following measures. For market size, we employ the natural log of real GDP per capita and (constant 2005 thousands of dollars), lagged by 1 year. The source for real GDP data is the World Bank (various years).¹⁵ In addition, because inflation often has a negative impact on sales, market-oriented firms might avoid host economies suffering from high inflation. To control for this possibility, we also include the natural log of the consumer price index (CPI, base year 2005) in each recipient, lagged by one year. The data are drawn from the International Monetary Fund (various years).

We employ two covariates to understand the effects of political conditions in the host economy on Chinese FDI. First, we include a covariate for human rights' abuse, which is the average of each host country's annual political rights and civil liberties score based on data from Freedom House (various years). The Freedom House report gives annual political rights and civil liberties scores for each country using an ordinal seven-point scale, with a higher score indicating more abuse of rights and liberties (Freedom House, various years). Employed previously in the quantitative FDI literature, the Freedom House data are considered a reliable indicator of human rights' practice. Second, we include a covariate for mass violence associated with revolutionary wars or organized antistate activity. Drawn from the Political Instability Taskforce (Marshall, Gurr, and Harff 2010), the data include a measure of the average magnitude score of revolutionary or mass antistate violence, ranging from 0, no violence, to 4, prevalence of violence.

Finally, as noted, prior research has speculated that the Chinese state has sought to use FDI to influence states that continue to offer diplomatic recognition to Taiwan. To address this possibility, we include a dummy variable for all years that countries in the data set recognized Taiwan ("1" for all country/years that a country recognized Taiwan; "0" otherwise) (Ministry of Foreign Affairs various years; Sutter 2012).

The data set is a pooled cross-sectional time series (PCSTS). As many analysts have noted, model estimation with pooled data violates several assumptions of ordinary least squares (OLS) regression. PCSTS data may exhibit serial correlation and panel heteroscedasticity (see Beck and Katz 1995:636, 2004:4). As expected, diagnostics of the data set indicated the presence of both heteroscedasticity and serial correlation.¹⁶ To address heteroscedasticity, the model is estimated using

¹⁴Due to the high correlation between the import and export data, we have used combined trade data (sum of Chinese imports and exports for each country/year) to avoid collinearity problems.

¹⁵For Cuba, we employ data from the Economic Commission for Latin America and the Caribbean for nominal GDP and CPI (2005 = 100, to deflate the nominal trade data and GDP), and population from the World Bank (various years).

¹⁶Breusch-Pagan test statistic (chi-square) for heteroscedasticity ($p < .001$). The pooled autocorrelation parameter, rho, is 0.602 in an equation without the lagged dependent variable (rho drops to 0.32 when the lagged dependent variable is included in the equation).

OLS and panel-corrected standard errors (Beck and Katz 1995, 2004:4). To address potential serial correlation, we include a lagged dependent variable, the log of Chinese real FDI_(t-1), as an independent variable in the model (Beck and Katz 1996, 2004). In addition, there may be influential units (that is, countries) in the data set that introduce heterogeneity. We follow advice in Stimson (1985:920) and Beck and Katz (2004:6, 14–15) to diagnose for this effect; after examining summed residuals and residual variance ratios for each country, only three units were identified and included as controls in the model.¹⁷ Finally, although recent studies of FDI (Blanco 2012) note the need to adjust for spatial effects in the data, standard diagnostic tests did not find any spatial autocorrelation in this data set.¹⁸

Analysis

The results of the model are presented in Table 1.¹⁹ As one can see from the data, the coefficient for Chinese trade in the previous year is positive and statistically significant. One possible reason for this relationship is that, as emphasized by China's FDI policy, exports are viewed as a precursor to the market entry for firms in Latin America and Africa. In Uruguay, for example, Chery Automotive's preexisting exports from China to the Mercosur economies convinced the firm (and state officials) of the potential for sales in the region (ENP 2009). In this context, Chery moved to establish a joint venture (with the *Grupo Macri*) in Uruguay in order to gain access to Argentina and Brazil.²⁰ Following prior success with exports of air conditioning units to Brazil, Gree, a consumer durables producer, decided to invest in Brazil (Ye et al. 2011:187–188). Chinese FDI in Brazil's construction equipment, consumer durables, and infrastructure has followed a similar pattern (Reta 2010). Likewise, Renard (2011) has also noted the effects of prior trade flows and Chinese FDI in South Africa, Nigeria, and other selected African cases.

The results of the model also suggest that Chinese FDI may be employed to gain access to natural resources. The coefficient for a recipient country's proven oil reserves (logged_{t-1}) is positive and significant. Adjusting for the effects of other covariates, the analysis suggests that the larger the proven reserve in the recipient, the higher the Chinese FDI flows.²¹ In interpreting this finding, it is useful to recall that China's quick pace of economic growth has led to growing dependence upon oil imports. In this context, the Chinese state has directed state-owned firms to pursue opportunities for joint ventures (and acquisitions) in a

¹⁷The unit effects are not included in the regression results. Linear mixed regression (random intercept at the country level, via maximum-likelihood estimation; see Beck and Katz 2007) produced results that are consistent with OLS. We retain the OLS approach (with three unit effects, as discussed in the main text) for ease of interpretation.

¹⁸Geary's *t*-statistic of spatial autocorrelation is not statistically significant ($p > .15$), which suggests that one cannot reject the null hypothesis of zero spatial correlation of the data. We repeated the analysis with observations for only Africa or Latin America and obtained the same result.

¹⁹Variance inflation factor (VIF) scores for each covariate, and the average for the full model, are well within tolerance levels and suggest that the results are not distorted by multicollinearity (maximum VIF = 1.84 for log of oil resources; average VIF for the complete model = 1.31). Likewise, estimation of the equation without the variable with the highest VIF produces results that are completely consistent with Table 1.

²⁰Likewise, in Mexico, automotive trade with China (for production by Chinese joint ventures in Mexico) facilitated Chinese FDI in the automotive industry (Wong-Gonzalez 2008). The sector was already mature following several decades of US, German, and Japanese FDI in the terminal industry, and the formation of Mexican firms in specialized segments (which developed under older import-substitution regulations; see Tuman 2003).

²¹In a separate trial, we replaced the covariate for proven oil reserves with fuel exports (as a percent of total merchandise exports) in African and Latin American recipients, lagged 1 year (World Bank various years). The coefficient for fuel exports was positive and statistically significant ($p < .01$), while results of the model are consistent with those in Table 1. This lends support to the interpretation that FDI is associated with extraction of oil resources from the host countries for export to China.

TABLE 1. Determinants of Chinese FDI in Latin America and Africa, 2003–2010

	Coefficient	Panel-Corrected Standard Error
Real Chinese trade with recipient, $\log_{(t-1)}$	0.051***	0.015
Real GDP per capita, $\log_{(t-1)}$	-0.038**	0.017
Inflation, $\log_{(t-1)}$	0.036	0.031
Proven oil reserves, $\log_{(t-1)}$	0.040*	0.023
Ore and metal exports (% of manufacturing exports) $_{(t-1)}$	0.002***	0.0008
Restrictions on civil/political liberties $_{(t-1)}$	-0.019	0.018
Revolutionary war and mass violence $_{(t-1)}$	0.012	0.019
Taiwan $_{(t-1)}$	-0.046**	0.021
Real Chinese FDI, $\log_{(t-1)}$ (lagged dependent variable)	0.383*	0.222
Intercept	2.61***	0.910
R^2	.26	
Wald χ^2	137.11***	
N	516	

(Notes. Entries are unstandardized OLS regression coefficients; panel-corrected standard errors are reported in the right-hand column.

* $p < .10$; ** $p < .05$; *** $p < .01$.)

variety of oil producing countries in Latin America and Africa. For example, having already invested in Ecuador and Peru, the China National Petroleum Corporation (CNPC) engaged in new FDI in 2009 for a joint venture to develop the Junin field in Venezuela, while deepening its FDI in Sudan, Angola, and Nigeria (Jiang and Sinton 2011:10, 14). In addition, the state-owned China National Offshore Oil Company (CNOOC) acquired a significant share of Nigeria's reserves in 2010 (Jiang and Sinton 2011:17). Likewise, Sinopec, a state-owned energy firm, recently completed acquisition of a stake in a Brazilian energy company, Galp Energia. Although Chinese officials remain sensitive to the perception of competing with the United States for energy resources, the evidence suggests that there is a clear strategy to use FDI to gain access to oil in Africa and Latin America.

The results for the ore and metals covariate lend further support to the hypothesis that Chinese officials seek to use FDI to gain access to natural resources. The coefficient for ore and metals exports is positive and statistically significant. After adjusting for the other potential influences in the model, Chinese FDI was more likely, on average, to concentrate in countries with copper, bauxite, nonferrous base metals, iron, or other ores. This is consistent with case studies that have observed a wave of Chinese FDI in countries with abundant ores and metals, including Peru, Brazil, Chile, Guyana, South Africa, Zambia, Mauritania, Liberia, and the Democratic Republic of Congo, among others (Renard 2011; Gonzalez-Vicente 2012).

Chinese firms have shown a growing interest in reaching consumers through FDI, but the results show that the coefficient for real GDP per capita is negative and significant. In other words, after controlling for the effects of trade and natural resources in the model, FDI flows were directed, on average, to African and Latin American markets with lower per capita income. As noted previously, some Chinese firms might be interested in using FDI to reach consumers in poorer markets. Several studies have found that Chinese producers of labor intensive equipment, textiles, and low-value-added consumer products have tended to prefer FDI in developing-country markets where there is potential for sales growth, but where competition from other multinationals in the local market does not create barriers to new entrants from China (see Li 2010:2–3, 31–33; Ye et al. 2011). To the extent that developing countries with higher per capita income

may already have a concentration of multinational firms in certain product sectors, the Chinese state has tended to guide firms, on average, to invest in markets with modest income levels where entry barriers and labor costs are lower (Broadman 2007:199; Li 2010:32–33). Nevertheless, as Chinese multinational firms mature, it is possible that the relationship between GDP per capita and Chinese FDI flows may change in the future. At the same time, the coefficient for inflation fails to achieve statistical significance.

Beyond economic influences, the results lend support to the hypothesis that diplomatic relations with Taiwan have an influence on Chinese FDI. It should be recalled here that many of the states that continue to recognize Taiwan are concentrated in Latin America and Africa; among the countries in this data set, Belize, the Dominican Republic, El Salvador, Gambia, Guatemala, Honduras, Nicaragua, and Paraguay recognized Taiwan (Chad, Costa Rica, and Senegal ended their recognition of Taiwan during the study period). The results of the model show that the coefficient for a host's diplomatic recognition of Taiwan is negative and statistically significant. This finding is consistent with the claim that China seeks to leverage FDI to pressure governments to break diplomatic recognition of Taiwan (Zhu 2013:87). Indeed, countries that maintained diplomatic relations with Taiwan received none to little FDI compared to other countries that had no diplomatic relations. Moreover, in those countries that stopped diplomatic relations with Taiwan during the study period (for example, Chad, Costa Rica, and Senegal), analysis of the data suggested that average inflows of Chinese FDI increased in the period after each country ended diplomatic relations with Taiwan.²²

The model does not suggest that internal political conditions in the host country have an impact on Chinese FDI flows. The coefficient for revolutionary wars and antistate violence is not statistically significant. Likewise, other domestic political factors seem to have little effect.²³ The coefficient for human rights abuse fails to achieve statistical significance. This suggests that Chinese firms are not clearly affected by rights conditions in the recipient.²⁴ Given that prior research has found that rights and FDI flows may vary by sector (Blanton and Blanton 2012), it is possible that a more fine-grained analysis might uncover a pattern in Chinese FDI by controlling for the sector receiving investment flows. Unfortunately, these data are not available for Chinese FDI at the present time.

Finally, the coefficient for the lagged dependent variable (Chinese FDI logged_{*t*-1}) is positive and achieves significance. Although Chinese firms entered the region only recently, the statistical findings suggest that there is consistency, on average, in the overtime flow of Chinese FDI across countries in these two regions.

²²In Senegal, Chad, and Costa Rica, the average annual level of inflows of Chinese FDI increased to 4.95, 20.94, and 1 million dollars, respectively, in the years following the end of diplomatic recognition of Taiwan; during the years of diplomatic recognition, the average annual inflow was only 0.13, 0.9, and zero, respectively, in these three countries (and there were several consecutive years of zero values in all three countries while there was recognition).

²³Of course, different indicators of political conditions might influence Chinese firms. Staats and Biglaiser (2012) and Blanco (2012) note the importance of the rule of law in developing regions. In separate trials, we estimated a model with a covariate for rule of law (from the Kaufmann, Kraay, and Mastruzzi 2010; data set) and did not find any effect for rule of law in the Latin American and African countries in our data set ($p > .10$). Likewise, although some scholars suggest that structural adjustment might influence the investment environment (Biglaiser and deRouen 2006; Montero 2008), we did not find an effect for years in which recipient states had an IMF-structural adjustment programs in place ($p > .10$).

²⁴In separate trials, we also examined the influence of labor rights among the African and Latin American countries in the data set (as measured by the CIRI Human Rights 2012 data for labor rights, various years); the coefficient was not statistically significant ($p > .10$).

Conclusion

This study has sought to improve understanding of Chinese FDI flows to Latin America and Africa. The findings of the study support scholarship that has emphasized a state-centered perspective on Chinese FDI decisions. The effects of natural resources in the model, as measured by FDI in host countries with proven reserves of oil, and ores and metals, suggest that the Chinese state continues to guide FDI in to meet China's energy security and natural resource needs (as well as the more specific interests of state-owned and private firms). Of course, as China's industrialization deepens and its per capita income increases, there may be a shift in the composition of domestic consumption, with attendant consequences for Chinese demand for natural resources and the state's outward FDI strategy. Certainly, future research should assess whether Chinese multinational firms change their strategy as the country's rapid economic development continues. The study also found that FDI concentrates in markets with lower per capita income, while trade has a strong effect on FDI. As noted in the case study literature, the results for trade point to the guidance of the Chinese state on firms to use trade as a precursor to FDI in foreign markets.

Consistent with studies on Chinese sovereign debt purchases, the findings of this study also support the claim that China may use FDI as a lever with states that recognize Taiwan (Erickson and Chen 2007; Renard 2011; Zhu 2013). During the period in question, there was a significant and negative association between FDI flows and states that recognized Taiwan. Moreover, states that broke diplomatic relations with Taiwan during the study period enjoyed an increase in FDI flows in the years that followed the end of diplomatic relations. Beyond promoting trade and securing adequate supplies of energy and natural resources, then, Chinese FDI in Africa and Latin America would appear to be guided by clear foreign policy objectives. Future researchers examining China's investment flows would be well served to see whether the foreign policy goals isolated in this study are present in Chinese FDI flows to other regions as well.

More broadly, the findings of this study also highlight some of the similarities and differences between Chinese firms and enterprises in advanced economies, including the United States, where firms tend to operate with no state guidance. Although it is beyond the scope of this study to present a complete study of US FDI, in separate trials we estimated a basic model of US FDI²⁵ in Latin America and Africa for the same time series (2003–2010). The results²⁶ of this analysis suggested that there are some key differences in the FDI behavior of US and Chinese firms. First, consistent with the prior literature (Staats and Biglaiser 2012),

²⁵The dependent variable was the natural log of real US FDI (constant 2005 millions of dollars) from 2003 to 2010, with an additive constant for negative or zero values; data were obtained from the Bureau of Economic Analysis (BEA), US Department of Commerce (various years), and CPI data from the World Bank (various years). Although we attempted to include all Latin American and African countries from the China model, the number of observations in the US FDI model was lower ($n = 385, 61$ countries) because of missing data for US FDI in several countries (the BEA does not report observations where US FDI in a country/year is from a few US firms that could be identified). All covariates were lagged by 1 year; they included the natural log of US trade with recipients, natural log of real GDP per capita (constant 2005 thousands of dollars), proven oil reserves (the natural log of billions of barrels of proven reserves), ore and metal exports, the natural log of the consumer price index (CPI, base year 2005), human rights abuse, and rule of law in each recipient. The data sources for each independent variable are the same as those listed in the Data and Methods section, and in note 23. The model was estimated with linear regression, panel-corrected standard errors, and a lagged dependent variable. Unit effects were included based on the analysis of summed residuals and residual variance ratios.

²⁶In the US FDI model, Rule of Law_($t-1$), $b = 0.336$, panel-corrected standard error = 0.171, $p < .05$; Log of Real GDP per capita_($t-1$), $b = 0.630$, panel-corrected standard error = 0.089, $p < .01$; Log of Proven Oil Reserves_($t-1$), $b = 0.723$, panel-corrected standard error = 0.089, $p < .01$; and Lagged Dependent Variable (log of US FDI_($t-1$)), $b = 0.188$, panel-corrected standard error = 0.071, $p < .01$. The coefficients for Log of Real US Trade_($t-1$), Log of Inflation_($t-1$), and Ore and Metal Exports (% of Manufacturing Exports)_($t-1$) were not significant ($p > .10$). The model Wald $\chi^2 = 6654.87$, $p < .01$; $R^2 = .63$.

domestic political institutions have an influence on US FDI. In particular, US FDI flowed to countries with a stronger rule of law (coefficient for rule of law was positive, $p < .05$), which suggests that US firms seek to operate in foreign markets where legal institutions may provide greater security for investments. However, in a separate trial (see note 23), we found that rule of law in recipients had no effect on Chinese FDI. Second, in this sample, US firms were more likely to be attracted to wealthier markets (Tuman and Emmert 2004).²⁷ Indeed, the coefficient for the log of real GDP per capita (constant 2005 dollars, lagged 1 year) in the recipient was positive and significant ($p < .01$) in the US FDI model. Nevertheless, as noted previously, we found the opposite effect for market wealth, as measured by the log of real GDP per capita, in the Chinese FDI model. Third, in contrast to the model for China, trade did not have a significant effect on US FDI in Latin American and African countries during the time frame.

At the same time, some natural resources appear to be important determinants for both Chinese and US firms. Although ore and metal exports did not exhibit an influence on US FDI, the coefficient for proven oil resources was positive and significant ($p < .01$) in the US FDI model that we estimated for comparison.²⁸ What this brief analysis suggests, then, is that there is some possibility for competition between US and Chinese FDI in the area of oil resources. Moreover, as noted previously, if Chinese FDI in certain markets substitutes for trade with US firms, Chinese investment flows raise the possibility of increased economic competition with the United States.²⁹ Given that the analysis and comparison of Chinese and US FDI presented here covers only a limited time frame, more research is needed. We remain hopeful that future researchers will investigate further some of the underlying reasons for the contrast (and similarity) in the factors associated with Chinese and US FDI in Latin America, Africa, and other developing areas.

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²⁷In a separate trial, we included human rights; the coefficient for Human Rights Abuse_(t-1) was not significant for US FDI ($p > .10$).

²⁸On the importance of natural resources for US FDI in Latin America, compare Blanco (2012).

²⁹Given the findings for market wealth, we suspect that Chinese FDI has greater odds of displacing US trade in markets with lower income levels, and with lower value-added products.

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