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ARTICLE

Under a money tree? Comparing the determinants of Western and Chinese development finance flows to Africa

David Landry

Sanford School of Public Policy, Duke University, Durham, United States

ABSTRACT

China's breakneck economic growth has been accompanied by an expanding development finance agenda. Many have hypothesized that China is undermining the West's drive to promote good governance globally, and in Africa in particular, by predominantly distributing money to poorly governed countries. This paper explores whether the determinants of Chinese development finance in Africa differ from those of Western countries. It finds that Western countries send more development finance than China to better governed African countries—those with lower corruption levels, better democratic outcomes, and a better human rights track record (though only the latter two have a negative relationship with Chinese development finance in absolute terms). This paper also finds that bilateral trade and UN voting alignment have a stronger impact on China's development finance than that of Western countries and that China allocates more development finance than the West to richer and more resource-dependent African countries.

KEYWORDS

Development Finance; governance; natural Resources; China; Africa

Introduction

Good governance sprung the forefront of the foreign policy agenda articulated by Western countries in the decade following the end of the Cold War[1]. However, according to widespread notions on the matter, China's growing aid footprint completely disregards governance issues and undermines the West's reform efforts. Moises Naím (2007) calls this phenomenon 'Rogue Aid'. He states: 'What's behind this sudden Chinese drive to do good around the world? The three short answers are: money, access to raw materials, and international politics'. Naím reaches sweeping conclusions based on a handful of observations. This paper empirically examines Naím's notions. First, it explores whether, compared to that of Western countries, China's development finance allocation in Africa disregards good governance. It also tests whether, compared to the West, China allocates more development finance to countries with which it has strong political alignment or trade ties, as well as resource-rich countries. Finally, it tests whether China allocates more development finance than the West to African countries regardless of their poverty levels.

This paper finds that governance quality plays a much stronger role in predicting Western development finance than that of China. More specifically, Western countries send more development finance than China to African countries with lower corruption levels, better levels of democratic development, and a better human rights track record. While, in absolute terms, China does not send more development finance to African countries with worse aggregate governance outcomes, it does send more development finance to African countries that suffer from low levels of

CONTACT David Landry davidglandry@jhu.edu Sanford School of Public Policy, Duke University , Durham, United States.

democratic development and from human rights abuses, as well as more politically stable countries. This paper also finds that bilateral trade (total exports and imports) and political alignment (UN voting patterns) have a stronger impact on China's development finance than that of Western countries, and that China allocates more development finance than the West to richer African countries. In other words, China favors its economic and political partners more than the west in allocating development finance and does not take receiving countries' level of needs into account as much as they do. Finally, colonial ties, which only apply to the Western countries sample, play a sizable role in predicting their development finance flows to Africa. The policy implications of this work are discussed briefly in the conclusion.

These questions are explored specifically with regards to Africa primarily because of data considerations. This paper employs the loans data produced by the China Africa Research Initiative at Johns Hopkins University (CARI), which represents the first effort to estimate Chinese loans in Africa from the bottom up, as opposed to relying on media reports to do so (Brautigam & Hwang, 2014). The methodology employed by CARI features rigorous data collection, cross-verification, and cleaning, emphasizing the 'official websites of central banks and ministries of finance, Chinese contractors, and personal contacts in China and in African countries' (ibid., p. 7). To ensure accuracy, CARI only counts loans of USD 25 million or more confirmed as signed 'by a representative of the Chinese bank or the Chinese government, or an official commitment by a reliable source or official website' (ibid., p. 7).

Beyond being the first paper to use the CARI database to model the determinants of Chinese development finance, this paper makes two key contributions to the development finance literature. First, this paper's modeling approach enables a direct comparison of the drivers of Chinese and Western development finance. The models combine China's development finance data with that of Western donors and use an interaction term to capture the extent to which they respond differently to specific predictor variables. It is the first paper to explore development finance using this identification strategy, which enables a direct and meaningful comparison of Chinese and Western practices. Second, this paper explores the impacts on development finance of a broader set of governance indicators than the existing work on this topic. While the existing literature overwhelmingly focuses on corruption and democracy, this paper explores the relationship between development finance and political stability, corruption controls, democratic development, and respect for human rights.

Governance, the key predictor variable of interest, is a nebulous term that has a vastly different meanings to different people. As part of this paper, governance implicitly refers to both extent of governance, which is conceptualized as a state monopoly on violence, in line with a long history of scholarship dating back to Weber (1922/1978), and good governance, which is defined as governance administered in a way that protects the near universal norms of human rights, democracy, and the rule of law.[2] In line with Ingram and Mosbacher (2018), development finance is defined as 'the use of public sector resources to facilitate private sector investment in low- and middle-income countries where the commercial or political risks are too high to attract purely private capital, and where the investment is expected to have a positive developmental impact on the host country'.

Literature review

Lumsdaine (1993) posits that moral vision, values, and principles, rather than strategic economic and political considerations, represent the fundamental determinants of foreign aid allocation. That account aligns with what Western donors articulate as the imperatives for their development activities. However, the literature reviewed in this section provides little support for this narrative. Instead, sending countries' strategic economic and political considerations appears to be the primary determinants of how they allocate funds (See McKinlay & Little, 1977; Maizels & Nissanke, 1984; McGillivray, 1989; Schraeder, Hook, & Taylor, 1998;; Kuziemko & Worker, 2006). More recent scholarship that explores the impacts of receiving countries' policies on

donor generosity also finds that strategic interests appear to dominate (see Burnside & Dollar, 2000; Alesina & Dollar, 2000; Alesina & Weder, 2002; Dollar & Levin, 2004;; Berthélemy, 2006).

It is worth noting that at least part of the data used in all the papers explored above dates from the Cold War era. The nature of world politics during the Cold War likely inflated the role played by strategic considerations in sending countries' development finance allocation decisions, at the expense of receiving countries' level of need. Additionally, the good governance agenda had yet to be fully developed at the time, which likely limited the role of governance in predicting development finance flows. Based on this intuition, Burnside and Dollar (2004) revisit the findings of their previous paper using 1990s data and find that aid allocation favors countries with better levels of democratic development and rule of law – a key change in the determinants of aid allocation. Interestingly, delving beyond the impacts of governance on aid allocation by country, Dietrich (2013) finds that, when allocating aid to poorly governed countries, donors often bypass recipient governments and deliver aid through nonstate actors instead.

Largely due to data scarcity, the determinants of Chinese development finance remained relatively unexplored until recently. In fact, none of the papers explored above feature data on Chinese development finance. Recent efforts to collect data on Chinese development finance – which usually compile project counts or total financial figures based on media reports – have helped change that. Dreher and Fuchs (2015) find that China favors countries with low per-capita income when allocating aid projects. However, they also find that China's project allocation seems to be linked to its export interests and geopolitical considerations (UN voting patterns, and countries' position *vis-à-vis* the One-China Policy), regardless of recipient countries' governance outcomes (democratic development and corruption controls). Finally, they find that recipient countries' natural resources endowments do not represent a key predictor of the Chinese projects they are allocated. In another paper, Dreher, Fuchs, Parks, Strange, and Tierney (2018) rely on the AidData database to investigate the determinants of China's ODA-like and OOF-like flows. They find that Chinese ODA-like flows are linked to Beijing's foreign policy interests. They do not find that the quality of governance of the level of need of recipient countries predict their ODA-like flows from China. Furthermore, they find that China's OOF-like flows are strongly associated with natural resource wealth, and commercially driven in general. , also using the AidData database, find that national leaders' home areas receive a disproportionate share of Chinese funds disbursed to African countries, as do the regions where a high concentration of individuals who share leaders' ethnic backgrounds. No such biases appear to exist with regards to World Bank projects.[3]

This paper seeks to update the literature on the determinants of development finance allocation in light of China's rise, paired with traditional donors' increasing focus on good governance. Much of the research on the determinants of development finance dates back more than a decade. Because of data constraints, much of the development finance literature has ignored China as a donor. The literature that does explore Chinese development finance does so using project counts or financial data based on media reports. Furthermore, the vast majority of the literature explores the role of governance in predicting development finance in a limited way – usually employing a single marker of governance that reflects corruption or democracy. Other governance indicators – notably respect for human rights – have remained largely unaddressed.

Questions and hypotheses

This paper aims to answer the following question: What are the determinants of development finance allocation in the early 21st century, and how do they differ between China and Western donors? More specifically, it seeks to explore the roles of African countries' governance levels, political alignment and trade ties with sending countries, and economic needs and natural resources endowments on the development finance they receive from China and Western donors.

The principle of non-interference in each other's internal affairs plays an important role in shaping Chinese development finance (Brautigam, 2009). Meanwhile, for decades, Western leaders have been

heralding good governance as a key aspect of their foreign policy agenda. Based on these sharply different policy pronouncements, governance is expected to have a positive – though limited – impact on development finance flows from Western countries, and no impact on China's. Given the strategic nature of development finance highlighted throughout the literature reviewed above, the relationship between political alignment and development finance is expected to be positive for both China and the West – and it is not expected to differ significantly between the two. Lending represents an economic instrument Beijing can leverage to support Chinese firms' exports (ibid.). Meanwhile, there has been a strong push in the West since the 1990s for aid to become untied. Therefore, bilateral trade ties are expected to have a stronger association with Chinese development finance flows than those of the West – though it is expected to be positive in both cases. China's development finance is driven by receiving countries' level of demand (Dollar, 2017). Based on that dynamic, Chinese development finance is not expected to flow on the basis of receiving poverty levels as much as that of the west. Finally, given that a significant portion of Chinese development loans are backed by natural resources (Brautigam & Hwang, 2014), the relationship between African countries' resources endowments and their development finance inflows is expected to differ significantly between China than the West. The hypothesized impacts of the paper's variables of interest on development finance, for China and the West, are presented in Table 1.

Table 1. Expected relationship with development finance.

VARIABLES	China	Western Countries
1. Governance	Neutral	Positive
2. Political Alignment	Positive	Positive
3. Bilateral Trade	Positive	Positive
4. Resources (% of GDP)	Positive	Neutral
5. GDP per Capita (PPP)	Positive	Negative

Methodology and data

The questions presented above are tested using enhanced gravity models. A set of dummy variables capture the identity of the sending country and the China dummy is interacted with the variables of interest in order to test the hypothesis that the determinants of China's development finance differ from those of Western countries. All the models are estimated using fixed effects reflecting the sending country, the receiving country, and the year captured by the data. Poisson Pseudo-Maximum-Likelihood (PPML) (Santos Silva & Tenreyro, 2006) estimations are used as part of this paper, as they naturally deal with the multiple zeros in the dependent variable, therefore essentially combining aspects of the extensive and intensive margin models in a single specification (Mityakov, Tang, & Tsui, 2013).[4] In other words, the PPML estimation captures whether development finance is sent to a receiving country (the extensive margin) and how much (the intensive margin) (ibid.). Another advantage of the PPML estimation is that it is consistent even in the presence of heteroskedasticity. The basic version of the paper's models is presented below.

$$y_{ijt} = \alpha x_{ijt} + \beta w_{jt} + \gamma v_{jt} + \delta u_{it} + \zeta v^{*} u_{ijt} + \eta t_{t} + \theta s_{i} + \imath r_{j} + \varepsilon_{ijt,}$$ [5,6]

Where:

- y_{ijt} is the total development finance flows from country i to African country j in year t.
- x_{ijt} is a vector of UN voting pattern alignment, bilateral trade (log), and geographic distance (log) between countries i and j, as well as dummy variables reflecting their colonial and language ties, during year t.
- w_{jt} is a vector of variables reflecting the economic and demographic characteristics of African countries – their GDP per capita, PPP (log) and population (log) – in year t.

- v_{jt} is a vector of variables reflecting the governance outcomes of African countries, such as corruption controls, political stability, democratic development, and respect for human rights, as well as an aggregate indicator of their governance outcomes, in year t. n_{it} also reflects the size of natural resource rents as a percentage of African countries' GDP in year t.
- u_{it} is a vector of dummy variables that capture whether country i in year t is China.
- $v^{*}u_{ijt}$ is a vector of interaction terms capturing whether the sending country is China and governance outcomes during year t (or other variable of interest). In other words, it captures whether the impact of the variable of interest changes when China is the sending country.
- t_t represents year fixed effects.
- s_i represents home country fixed effects.
- r_j represents host country fixed effects.
- ε_{ijt} is the error term.

This paper employs panel development finance data from two distinct sources. For the Western sample, it uses data on total official development assistance and other official flows by sending country to individual African countries obtained from the OECD for the years 2000 to 2015. Four Western countries are sampled – France, Germany, the UK, and the US.[7] See Figure 1 for each country's total yearly development finance flows to Africa. The data on Chinese development finance to individual African countries were compiled and shared by CARI and span 2000 to 2015. The data contains Chinese government loans to African governments, where Chinese government loans are defined as loans from China's policy banks, including China Export-Import Bank and China Development Bank, as well as the Chinese Ministry of Commerce. While much of Western countries' development finance takes the form of grants, no reliable data on Chinese grants – which make up a very small share of its development finance – exists. They are therefore left out of the analysis. Finally, while break down Chinese development finance between ODA-like and OOF-like flows was considered, it was deemed that too little is known about the degree of concessionally of Chinese loans to do so without sacrificing accuracy. Therefore, development finance is aggregated for both China and the Western countries sampled. Figure 2present China's total development finance flows to individual African countries. As it demonstrates, Angola represents an outlier in terms of how much of China's development finance it receives. For instance, it received more than USD 19 billion in loans from China in 2016, which represents 63% of the USD 30.5 billion total for that year.[8]

As part of this paper, governance encapsulates both the extent and the quality of governance in African countries. To that end, four indicators are used. The political stability variable captures the World Bank Worldwide Governance Indicator (WGI) reflecting 'perceptions of the likelihood of political instability and/or politically-motivated violence, including terrorism' (World Bank, 2016).[9] The corruption controls variable indexes two distinct WGI datasets reflecting (1) 'perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence' and (2) 'perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests' (World Bank, 2016).[10] The democratic development variable indexes two sources of data: (1) the Polity Project data, which is based on electoral openness and competitiveness, political participation, and checks and balances to constrain individuals in power and (2) the Freedom House data, which evaluates political rights, based on indicators covering the electoral process, political participation, and the functioning of government, as well as civil liberties, based on indicators of freedom of expression, rights to association, rule of law, and individual rights.[11] The respect for human rights variable reflects quantitative indicators on respect for a set of 15 human rights in 202 countries collected by Cingranelli, Richards, and Klay (2016).[12] Finally, the aggregate governance indicator is generated using a principal component analysis of these same four

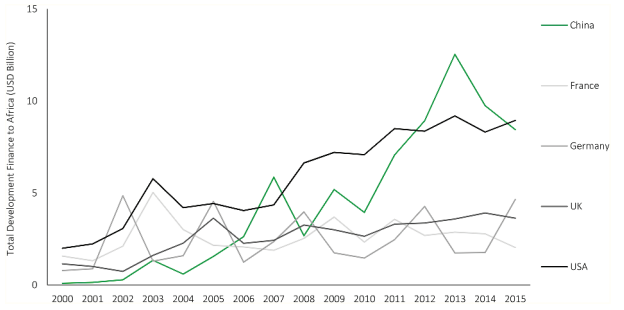

Figure 1. Development finance flows by sending Country, 2000–2015 (CARI, 2019; OECD, 2019).

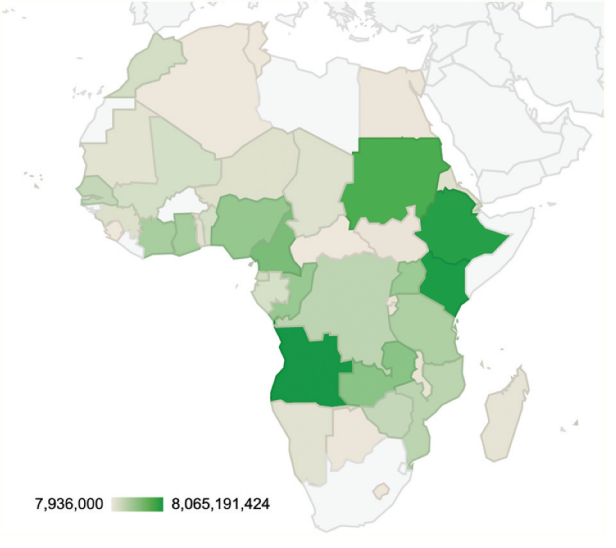

Figure 2. Chinese Development Finance Flows, 2000–2015. (CARI, 2019).

governance indicators. In order to facilitate the interpretation of the results, each of the variables outlined below, as well as the aggregate governance indicator, are standardized.[13]

The political alignment variable measures the voting alignment of country pairs at the UN in a given year, in terms of their respective ideal point estimates (Bailey, Strezhnev, & Voeten, 2015). The bilateral trade variable reflects the total trade flows between two countries and is produced by UN Comtrade. The dummy variables capturing country-pairs' colonial and linguistic ties, as well as the distance between their respective capital cities, are compiled by the *Centre d'Etudes Prospectives et d'Informations Internationales* (CEPII). The variables reflecting the characteristics of the African countries sampled – their GDP, GDP per capita, population, and the importance of natural resource rents as a share of their economic output – are obtained from the World Bank. Finally, the data reflecting the governance outcomes of the African countries sampled are produced by the World Bank, Freedom House, Polity IV, and Cingranelli et al. (2016). Table 2 provides summary statistics of the paper's data.

Table 2. Summary statistics.

VARIABLES	Mean	Standard Deviation	Minimum	Maximum	Source(s)
1. ODF and ODF-Like Flows	67 M	198 M	0	4,020 M	OECD and SAIS-CARI
2. Political Alignment	0	1	−2.42	1.85	Bailey, Strezhnev, and Voeten
3. Bilateral Trade	1,210 M	3,700 M	127,000	65,200 M	UN Comtrade
4. Common Language (Dum.)	0.27	0.44	0	1	CEPII
5. Colonial Ties (Dum.)	0.17	0.38	0	1	CEPII
6. Geographic Distance	7,597	2,968	1,340	14,928	CEPII
7. GDP per Capita (PPP)	4,930	6,550	400	48,711	WB
8. Population	18 M	26 M	81,131	182 M	WB
9. Resources (% of GDP)	15	16	0	81	WB
10. Governance (Ind.)	0	1	−2.04	2.37	WB, P4, FH, C & R
11. Political Stability (Ind.)	0	1	−2.15	1.93	WB
12. Corruption Controls (Ind.)	0	1	−2.71	2.69	WB
13. Democratic Development (Ind.)	0	1	−2.02	1.96	Polity 4, Freedom House
14. Respect for Human Rights (Ind.)	0	1	−2.10	2.11	Cingranelli, Richards, and Klay

Results

The models presented above highlight how different governance indicators impact Chinese and Western development finance flows – often quite differently. For instance, they demonstrate that, in addition to that of the aggregate governance index, the coefficients of corruption controls, democratic development, and respect for human rights are all lower for China than the Western countries sampled (in all cases, the difference is statistically significant at the one percent level).

Model 1 does not support the view that African countries' aggregate governance quality significantly impacts the development finance they receive from the four Western countries sampled. What it does unambiguously demonstrate, however, is that the Western countries sampled send significantly more development finance than China to countries that have better governance outcomes. More specifically, the coefficients presented in Model 1 imply that a standard deviation increase in governance quality is associated with a 15% increase in development finance from the West, though the coefficient lacks statistical significance.[14] (Appendix D, which presents the results disaggregated by sending country shows that the impact of a standard deviation increase in governance quality ranges between −4% for France and 34% for Germany.) The same increase in governance quality is associated with a decrease of less than three percent in development finance flows from China (the coefficient highlighting the impact of governance on Chinese development finance compared to that of the west being statistically significant at the one percent level).[15] The fact that governance outcomes among African countries play a virtually non-existent role in predicting their development finance flows from China is consistent with China's principle of non-interference, whereby its foreign policy is unconcerned with the internal affairs of other countries.

Of the four individual governance indicators presented in Table 1, only political stability has a statistically significant positive impact on Western countries' development finance flows. Model 3 shows that a standard deviation increase in political stability is associated with a 30% increase in development finance from the West (statistically significant at the one percent level) and a 40% increase in Chinese development finance (the coefficient's difference with that of the Western countries sampled is not statistically significant). According to Model 2, African countries' corruption controls positively correlate to their development finance inflows from the West, though not to a statistically significant extent. The relationship between corruption controls and Chinese development finance is negative, but barely so. That said, the fact that the difference between China' coefficient and that of the Western countries sampled is statistically significant at the one percent level shows that Western countries send substantially more development finance than China to African countries with lower corruption levels. Interestingly, Model 4 shows that democratic development has a slightly negative impact on both Western development finance. On the other hand, a standard deviation increase in democratic development is associated with a 33% decrease in

Results Table 1: dependent variable: African Countries' DF inflows.

VARIABLES	1	2	3	4	5
Governance (Index)	0.141				
	(0.112)				
China * Governance (Index)	−0.168***				
	(0.0585)				
Corruption (Index)		0.221			
		(0.283)			
China * Corruption (Index)		−0.258***			
		(0.0637)			
Stability (Index)			0.259***		
			(0.0851)		
China * Stability (Index)			0.0802		
			(0.0658)		
Democracy (Index)				−0.0803	
				(0.0862)	
China * Democracy (Index)				−0.204***	
				(0.0647)	
Human Rights (Index)					−0.0943
					(0.145)
China * Human Rights (Index)					−0.170***
					(0.0418)
Political Alignment (Index)	−0.343	−0.350	−0.310	−0.324	−0.340
	(0.391)	(0.398)	(0.412)	(0.381)	(0.399)
Bilateral Trade (Log)	0.282	0.266	0.276	0.281	0.285
	(0.179)	(0.173)	(0.171)	(0.176)	(0.179)
Resources (% of GDP)	0.0212**	0.0223***	0.0206***	0.0221***	0.0230**
	(0.00856)	(0.00780)	(0.00746)	(0.00813)	(0.00996)
GDP per Capita, PPP (Log)	0.321	0.223	0.219	0.250	0.213
	(0.520)	(0.540)	(0.522)	(0.515)	(0.517)
Population (Log)	−1.444	−1.576	−1.543	−1.491	−1.097
	(1.861)	(1.855)	(1.880)	(1.998)	(2.004)
Language (Dummy)	0.652***	0.654***	0.670***	0.643***	0.660***
	(0.192)	(0.202)	(0.170)	(0.196)	(0.183)
Colony (Dummy)	0.554**	0.576**	0.585**	0.573**	0.548**
	(0.268)	(0.258)	(0.241)	(0.259)	(0.266)
Distance (Log)	−0.398**	−0.388**	−0.366**	−0.391*	−0.372**
	(0.185)	(0.164)	(0.149)	(0.204)	(0.188)
Observations	3,459	3,469	3,469	3,469	3,459
R-squared	0.243	0.242	0.243	0.244	0.246

*** p < 0.01, ** p < 0.05, * p < 0.1
Models include year, home country, and host country fixed effects
Robust standard errors clustered by home country in parentheses

Chinese development finance (the gap with the Western countries sample is statistically significant at the one percent level). Finally, Model shows that a standard deviation increase in respect for human rights has a negative – though minimal – impact on Western development finance. The negative impact of such a change on China's development finance is larger, at 30% (the coefficient's difference from that of the West is statistically significant at the one percent level). It is worth noting the surprising fact that, as shown by Models 4 and 5, the coefficients of both democratic development and respect for human rights are negative for the Western countries sample (though, in both cases, they lack statistical significance). This strongly suggests that large Western donors do not

Results Table 2: dependent variable: African countries' DF inflows

VARIABLES	1	2	3	4
Political Alignment (Index)	−0.498	−0.359	−0.381	−0.393
	(0.579)	(0.435)	(0.427)	(0.420)
China * Political Alignment (Index)	1.007***			
	(0.213)			
Trade (Log)	0.271	0.208	0.274	0.281*
	(0.168)	(0.134)	(0.168)	(0.169)
China * Trade (Log)		0.277***		
		(0.0277)		
Resources (% of GDP)	0.0214**	0.0216***	0.0175*	0.0219***
	(0.00844)	(0.00787)	(0.0105)	(0.00820)
China * Resources (% of GDP)			0.0157**	
			(0.00693)	
GDP per Capita, PPP (Log)	0.253	0.307	0.310	0.270
	(0.485)	(0.493)	(0.530)	(0.488)
China * GDP per Capita, PPP (Log)				0.382***
				(0.101)
Governance (Index)	0.114	0.116	0.106	0.0989
	(0.101)	(0.103)	(0.0971)	(0.1000)
Population (Log)	−1.488	−1.298	−1.450	−1.162
	(1.890)	(1.906)	(1.810)	(1.839)
Language (Dummy)	0.695***	0.654***	0.621***	0.640***
	(0.173)	(0.178)	(0.225)	(0.148)
Colony (Dummy)	0.559**	0.622***	0.568**	0.613***
	(0.252)	(0.229)	(0.252)	(0.205)
Distance (Log)	−0.363***	−0.554***	−0.493***	−0.523***
	(0.133)	(0.194)	(0.155)	(0.190)
Observations	3,459	3,459	3,459	3,459
R-squared	0.249	0.253	0.240	0.243

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$
Models include year, home country, and host country fixed effects
Robust standard errors clustered by home country in parentheses

prioritize democracy and human rights as much as they aspire to in their development finance allocation decisions.

Results Table 2 highlights how African countries' political alignment and bilateral trade ties with sending countries, in addition to their resource endowments and poverty levels, impact the development finance they receive. Surprisingly, Model 1 suggests that political alignment does not play a statistically significant role in predicting Western countries' development finance flows to Africa (even more surprising is the fact that the coefficient is negative). With regards to China, Model 1 conforms to the hypothesis presented earlier. It demonstrates that a standard deviation improvement in UN voting patterns alignment is associated with a 66% increase in development finance from China (the difference between that coefficient and that of the western countries sampled is statistically significant at the one percent level). Also surprising is the fact that, as Model 2 demonstrates, bilateral trade ties do not have a statistically significant impact on the development finance flows of the western countries sampled. With regards to China, a one percent increase in bilateral trade is associated with a 0.62% increase in development finance (and the difference between China's coefficient and that of the West is statistically significant at the one percent level). This suggests that, as hypothesized, because of the commercial nature of much of its development lending, China places a greater emphasis on trade ties than the West in allocating

development finance to African countries. African countries' natural resources wealth play a positive role in predicting their development finance inflows from both the West and China. Model 3 shows that a one percent increase in resources wealth as a percentage of GDP is associated with a 0.02% increase in Western development finance (statistically significant at the 10% level) and a 0.03% increase in Chinese development finance (and the difference between China and the Western countries' respective coefficients is statistically significant at the five percent level). This conforms to the paper's hypothesis and can likely be explained by the fact that a substantial share of Chinese loans are resource-backed. Finally, Model 4 demonstrates that receiving countries' level of need – reflected in their per capita GDP – plays a negative role in predicting their development finance inflows from both western countries and China. That said, the Western countries sample's coefficient lacks statistical significance. With regards to China, a one percent increase in per capita GDP is associated with a 0.92% increase in development finance (and the difference between that coefficient and that of the Western countries sample is statistically significant at the one percent level). In other words, China sends vastly more development finance than the Western countries sampled to richer African countries. This may be due to the fact that, on the one hand, the majority of Chinese-financed projects in Africa are in the infrastructure sector and, on the other, many of them are initiated by receiving countries themselves. As stated by Varrall, 'Officials are proud of China's commitment to "demand-driven aid", where the proposals for development projects must come from the partner country' (2018). Therefore, some self-selection might be at play, whereby richer Africa countries have higher demand for pricier infrastructure projects.

Conclusions

In line with Naím's 'Rogue Aid' narrative, this paper finds that UN voting alignment, bilateral trade ties, natural resources wealth, and governance quality all impact Chinese development in a markedly different way than that of the West. While, in absolute terms, China does not send more development finance to African countries with worse aggregate governance outcomes, it does send more development finance to African countries that suffer from low levels of democratic development and from human rights abuses. This finding is largely in line with that of Dreher and Fuchs (2015), who find that China allocates development finance without regard to recipient countries' governance outcomes, though the breakdown governance in this paper yields a more granular picture of its impact on Chinese development finance. With regards to Western countries, which tend to stress the importance of good governance when articulating policy, this paper finds that aggregate governance outcomes among African countries do not play a significant role in predicting their development finance inflows. Furthermore, the only governance indicator that has a statistically significant positive impact on western development finance is political stability. Surprisingly, political alignment and bilateral trade do not play a statistically significant role in predicting western development finance (though linguistic and colonial ties do). The fact that bilateral trade has a statistically significant impact on China's development finance supports Brautigam's assertion that aid can act as an economic instrument to support Chinese firms' exports. Finally, political alignment's statistically significant effect on Chinese development finance suggests that Chinese loans are not only a tool of commercial promotion, but also a way to support Chinese foreign policy.

As Naím's hugely influential 'Rogue Aid' piece amply demonstrates, the ways in which Chinese and western actors engage with other countries, and particularly in Africa, are widely perceived to be at odds, and untested claims of exactly how that plays out can be propagated widely (Naim, 2007). Therefore, systematically investigating how the respective approaches of China and the west with regards to development finance differ represents an important line of scholarship. Furthermore, this line of research has important implications for policymakers. The findings presented above suggest that, though its development finance has changed dramatically in recent decades (See Morgan & Zheng, 2019), China still has a gap to bridge in terms of how it allocates funds, particularly in terms of prioritizing the needs of receiving countries rather than its own commercial and political interests. That said, Western countries

also fail to allocate development finance on the basis of the governance quality or needs of receiving countries and moving in that direction could go a long way in enhancing the impact of their aid.

Notes

1. This paper was developed from the previous working paper *Comparing the Determinants of Western and Chinese Development Finance Flows to Africa* (Landry, 2018).
2. These aspects of good governance were explicitly mentioned in the United Nations (UN) 2000 Millennium Declaration and 2005 World Summit Outcome, as part of which member states committed themselves to protecting and promoting human rights, the rule of law and democracy. Similarly, the UN High-Level Declaration on the Rule of Law and the International Rule of Law states: 'human rights, the rule of law and democracy are interlinked and mutually reinforcing and that they belong to the universal and indivisible core values and principles of the United Nations'. Similarly, Article 4(m) of the Constitutive Act of the African Union explicitly states that the Union shall respect the 'democratic principles, human rights, the rule of law and good governance' (See Häusler et al., 2016).
3. See Dreher et al., 2019; Isaksson & Kotsadam, 2018; and Brazys et al., (2017) for a discussion of the impacts of Chinese development finance.
4. See Appendix A for the OLS models results, where the log of the yearly value of development finance flow, plus 1, is used as the dependent variable).
5. Wooldridge's (2002) serial autocorrelation test for panel data models was run for each model. The null hypothesis of no serial autocorrelation failed to be rejected in all the models.
6. A simple OLS regression model of the development finance flows data on all the predictor variable was estimated, following which a Variance Inflation Factor test (VIF) was run on all the predictor variables. Their VIF ranged from 1.26 (political ties) to 3.35 (corruption), which suggests that multicollinearity is not an issue in the models.
7. This is because they, along with China, represent the west's largest economies and account for most development finance to Africa. Using aggregate OECD figures in the models could have been a valid alternative but was decided against because many OECD countries are not in the West.
8. See Appendix B for the paper results excluding Angola.
9. It is then indexed and converted to a 0–5 scale as follows: Political Stability and Absence of Violence + 2.5.
10. The resulting variable is converted to a 0–5 scale as follows: [(Rule of Law + Control of Corruption)/2] + 2.5.
11. Each dataset is indexed and converted 0–5 scale as follows: [(Polity + 10)/4 + (7 – Freedom House)*0.83]/2.
12. The indicators are indexed and converted to a 0–5 scale as follows: [Human Rights/14] * 5.
13. It is worth noting that these variables are perception based. However, no better governance indicators exist for the purpose of this research. Furthermore, the very mechanisms through which governance are expected to affect economic activities as part of this work are perception driven.
14. The implied response to changes in governance outcomes is computed as e(βGovernance) – 1.
15. The implied Chinese response to changes in governance outcomes is computed as e(βGovernance – βGovernance* China) – 1.

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Notes on contributor

David Landry is a Professor of the Practice at Duke University and lectures on international political economy and international development at Duke Kunshan University. His research focuses on the political and economic determinants of China's development finance and investment flows in the developing world, and how these in turn affect development.

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Appendix A: Results (OLS)

Results Table 1

VARIABLES	1	2	3	4	5
Governance (Index)	2.933e+06				
	(3.549e+06)				
China * Governance (Index)	−1.824e+07*				
	(7.613e+06)				
Corruption (Index)		9.918e+06			
		(1.375e+07)			
China * Corruption (Index)		−1.939e+07**			
		(6.064e+06)			
Stability (Index)			1.122e+07		
			(7.346e+06)		
China * Stability (Index)			1.282e+06		
			(1.014e+07)		
Democracy (Index)				859,268	
				(5.881e+06)	
China * Democracy (Index)				−1.833e+07**	
				(4.277e+06)	
Human Rights (Index)					−1.032e+07
					(6.115e+06)
China * Human Rights (Index)					−2.057e+07**
					(6.970e+06)
Political Alignment (Index)	−2.566e+07	−2.499e+07	−2.385e+07	−2.691e+07	−2.558e+07
	(2.369e+07)	(2.423e+07)	(2.402e+07)	(2.531e+07)	(2.479e+07)
Bilateral Trade (Log)	1.360e+07	1.279e+07	1.388e+07	1.373e+07	1.396e+07
	(1.006e+07)	(9.600e+06)	(1.036e+07)	(1.017e+07)	(1.032e+07)
Resources (% of GDP)	740,534	820,550	853,151	746,157	734,794
	(873,680)	(729,367)	(889,565)	(845,675)	(848,533)
GDP per Capita, PPP (Log)	8.954e+07	8.446e+07	7.670e+07	8.822e+07	8.775e+07
	(8.904e+07)	(7.733e+07)	(9.147e+07)	(8.595e+07)	(8.570e+07)
Population (Log)	1.308e+08	1.322e+08	1.181e+08	1.284e+08	1.407e+08
	(2.074e+08)	(2.070e+08)	(2.104e+08)	(2.059e+08)	(2.112e+08)
Language (Dummy)	5.529e+07***	5.564e+07***	5.653e+07***	5.594e+07***	5.596e+07***
	(1.114e+07)	(1.111e+07)	(1.112e+07)	(1.092e+07)	(1.074e+07)
Colony (Dummy)	1.359e+07	1.445e+07	1.315e+07	1.360e+07	1.295e+07
	(1.071e+07)	(1.096e+07)	(1.049e+07)	(1.059e+07)	(1.034e+07)
Distance (Log)	−4.078e+07	−3.909e+07	−3.426e+07	−4.016e+07	−3.835e+07
	(2.925e+07)	(2.652e+07)	(2.637e+07)	(2.874e+07)	(2.849e+07)
Observations	3,459	3,469	3,469	3,469	3,459
R-squared	0.188	0.188	0.187	0.188	0.189

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$
Models include home country, host country, and year fixed effects
Robust standard errors clustered by home country in parentheses

Results Table 2

VARIABLES	1	2	3	4
Political Alignment (Index)	−3.850e+07	−1.935e+07	−2.525e+07	−2.637e+07
	(3.593e+07)	(2.153e+07)	(2.332e+07)	(2.432e+07)
China * Political Alignment (Index)	8.938e+07**			
	(2.537e+07)			
Trade (Log)	1.358e+07	8.096e+06	1.301e+07	1.467e+07
	(9.850e+06)	(6.750e+06)	(9.615e+06)	(1.078e+07)
China * Trade (Log)		1.845e+07**		
		(5.610e+06)		
Resources (% of GDP)	771,893	704,277	454,331	729,384
	(849,316)	(895,753)	(1.134e+06)	(884,238)
China * Resources (% of GDP)			1.474e+06**	
			(327,472)	
GDP per Capita, PPP (Log)	8.510e+07	9.111e+07	9.023e+07	8.422e+07
	(8.591e+07)	(8.818e+07)	(8.933e+07)	(8.363e+07)
China * GDP per Capita, PPP (Log)				2.096e+07**
				(5.997e+06)
Governance (Index)	515,285	−1.000e+06	−666,768	−714,601
	(5.058e+06)	(6.040e+06)	(5.810e+06)	(5.820e+06)
Population (Log)	1.349e+08	1.302e+08	1.321e+08	1.281e+08
	(2.102e+08)	(2.045e+08)	(2.077e+08)	(2.065e+08)
Language (Dummy)	5.683e+07***	5.874e+07***	5.416e+07***	5.583e+07***
	(1.006e+07)	(8.241e+06)	(1.151e+07)	(1.123e+07)
Colony (Dummy)	1.308e+07	1.852e+07	1.433e+07	1.276e+07
	(1.107e+07)	(9.743e+06)	(1.108e+07)	(9.776e+06)
Distance (Log)	−3.198e+07	−5.274e+07	−4.673e+07	−3.553e+07
	(2.205e+07)	(3.524e+07)	(2.973e+07)	(2.585e+07)
Observations	3,459	3,459	3,459	3,459
R-squared	0.188	0.192	0.189	0.188

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$
Models include home country, host country, and year fixed effects
Robust standard errors clustered by home country in parentheses

Appendix B. Results (Excluding Angola)

Results Table 1

VARIABLES	1	2	3	4	5
Governance (Index)	0.145				
	(0.129)				
China * Governance (Index)	−0.0943				
	(0.0584)				
Corruption (Index)		0.170			
		(0.244)			
China * Corruption (Index)		−0.110**			
		(0.0495)			
Stability (Index)			0.301***		
			(0.0804)		
China * Stability (Index)			0.0575		
			(0.0585)		
Democracy (Index)				−0.0809	
				(0.0910)	
China * Democracy (Index)				−0.109	
				(0.0669)	
Human Rights (Index)					−0.0947
					(0.146)
China * Human Rights (Index)					−0.131***
					(0.0433)
Political Alignment (Index)	−0.342	−0.347	−0.314	−0.327	−0.336
	(0.408)	(0.417)	(0.419)	(0.406)	(0.414)
Bilateral Trade (Log)	0.277	0.267	0.272	0.275	0.280
	(0.176)	(0.171)	(0.169)	(0.175)	(0.177)
Resources (% of GDP)	0.0200*	0.0210**	0.0194*	0.0210**	0.0219*
	(0.0112)	(0.0103)	(0.00992)	(0.0106)	(0.0124)
GDP per Capita, PPP (Log)	0.369	0.253	0.311	0.298	0.268
	(0.583)	(0.586)	(0.579)	(0.588)	(0.571)
Population (Log)	−1.226	−1.332	−1.193	−1.293	−0.918
	(1.978)	(1.911)	(2.019)	(2.149)	(2.134)
Language (Dummy)	0.541**	0.552**	0.555**	0.542**	0.545**
	(0.240)	(0.240)	(0.227)	(0.243)	(0.235)
Colony (Dummy)	0.578**	0.592**	0.598***	0.591**	0.571**
	(0.248)	(0.241)	(0.232)	(0.242)	(0.250)
Distance (Log)	−0.435**	−0.420***	−0.408***	−0.422**	−0.416**
	(0.170)	(0.158)	(0.151)	(0.180)	(0.176)
Observations	3,394	3,404	3,404	3,404	3,394
R-squared	0.244	0.242	0.246	0.244	0.247

*** p < 0.01, ** p < 0.05, * p < 0.1
Models include home country, host country, and year fixed effects
Robust standard errors clustered by home country in parentheses

Results Table 2

VARIABLES	1	2	3	4
Political Alignment (Index)	−0.488	−0.348	−0.343	−0.381
	(0.591)	(0.430)	(0.419)	(0.428)
China * Political Alignment (Index)	1.002***			
	(0.259)			
Trade (Log)	0.267	0.223	0.276	0.278
	(0.167)	(0.143)	(0.173)	(0.172)
China * Trade (Log)		0.212***		
		(0.0292)		
Resources (% of GDP)	0.0201*	0.0201*	0.0196	0.0205*
	(0.0111)	(0.0106)	(0.0120)	(0.0107)
China * Resources (% of GDP)			0.00221	
			(0.00590)	
GDP per Capita, PPP (Log)	0.318	0.392	0.372	0.346
	(0.550)	(0.573)	(0.582)	(0.567)
China * GDP per Capita, PPP (Log)				0.310***
				(0.111)
Governance (Index)	0.139	0.140	0.127	0.125
	(0.125)	(0.125)	(0.118)	(0.116)
Population (Log)	−1.230	−1.067	−1.211	−0.981
	(1.973)	(2.020)	(1.962)	(2.023)
Language (Dummy)	0.578***	0.568***	0.543**	0.538**
	(0.216)	(0.219)	(0.240)	(0.211)
Colony (Dummy)	0.576**	0.617***	0.584**	0.616***
	(0.242)	(0.225)	(0.238)	(0.202)
Distance (Log)	−0.403***	−0.540***	−0.442***	−0.527***
	(0.139)	(0.176)	(0.150)	(0.172)
Observations	3,394	3,394	3,394	3,394
R-squared	0.251	0.250	0.242	0.242

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$
Models include home country, host country, and year fixed effects
Robust standard errors clustered by home country in parentheses

Appendix C. Results (Reduced Form)

Results Table 1

VARIABLES	1	2	3	4	5
Governance (Index)	-0.277***				
	(0.0401)				
China * Governance (Index)	-0.231***				
	(0.0401)				
Corruption (Index)		-0.108**			
		(0.0466)			
China * Corruption (Index)		-0.229***			
		(0.0466)			
Stability (Index)			-0.392***		
			(0.0629)		
China * Stability (Index)			0.0497		
			(0.0629)		
Democracy (Index)				0.000315	
				(0.0303)	
China * Democracy (Index)				-0.189***	
				(0.0303)	
Human Rights (Index)					-0.314***
					(0.0357)
China * Human Rights (Index)					-0.220***
					(0.0357)
Observations	4,185	4,265	4,265	4,265	4,185
R-squared	0.015	0.005	0.018	0.003	0.017

*** p < 0.01, ** p < 0.05, * p < 0.1
Robust standard errors clustered by home country in parentheses

Results Table 2

VARIABLES	1	2	3	4
Political Alignment (Index)	−0.475***			
	(0.0330)			
China * Political Alignment (Index)	0.233***			
	(0.0330)			
Trade (Log)		0.319***		
		(0.0581)		
China * Trade (Log)		0.235***		
		(0.0581)		
Resources (% of GDP)			0.00523*	
			(0.00302)	
China * Resources (% of GDP)			0.0138***	
			(0.00302)	
GDP per Capita, PPP (Log)				−0.0179
				(0.0536)
China * GDP per Capita, PPP (Log)				0.194***
				(0.0536)
Observations	3,919	3,975	3,775	4,270
R-squared	0.012	0.070	0.006	0.002

*** p < 0.01, ** p < 0.05, * p < 0.1
Robust standard errors clustered by home country in parentheses

Appendix D. Results (Disaggregated by Sending Country)

	China					France				
	1 Governance	2 Corruption	3 Stability	4 Democracy	5 Human Rights	1 Governance	2 Corruption	3 Stability	4 Democracy	5 Human Rights
Governance (Index)	−0.254					−0.0442				
	(0.155)					(0.113)				
Corruption (Index)		−0.326*					−0.0975			
		(0.170)					(0.139)			
Stability (Index)			0.199					0.0156		
			(0.168)					(0.0978)		
Democracy (Index)				−0.189					−0.0454	
				(0.197)					(0.0890)	
Human Rights (Index)					−0.333**					−0.0173
					(0.146)					(0.0871)
Political Alignment (Index)	1.344	1.304	1.140	1.276	1.318	−0.564	−0.594	−0.545	−0.558	−0.553
	(0.885)	(0.870)	(0.899)	(0.856)	(0.872)	(0.425)	(0.423)	(0.422)	(0.422)	(0.422)
Bilateral Trade (Log)	0.484***	0.490***	0.427***	0.480***	0.481***	0.545***	0.562***	0.530***	0.545***	0.535***
	(0.109)	(0.106)	(0.122)	(0.106)	(0.112)	(0.0901)	(0.0976)	(0.0786)	(0.0849)	(0.0797)
Resources (% of GDP)	0.00621	0.00380	0.0187**	0.00812	0.00823	−0.00733	−0.00940	−0.00590	−0.00693	−0.00642
	(0.00833)	(0.00928)	(0.00892)	(0.00742)	(0.00788)	(0.00775)	(0.00830)	(0.00760)	(0.00738)	(0.00749)
GDP per Capita, PPP (Log)	−0.251*	−0.233	−0.327**	−0.294**	−0.293**	−0.438**	−0.434**	−0.434**	−0.447**	−0.436**
	(0.139)	(0.149)	(0.149)	(0.144)	(0.142)	(0.196)	(0.188)	(0.190)	(0.201)	(0.197)
Population (Log)	0.106	0.133	0.276*	0.173	0.0772	0.226***	0.210***	0.254***	0.235***	0.240***
	(0.114)	(0.107)	(0.153)	(0.106)	(0.117)	(0.0767)	(0.0742)	(0.0787)	(0.0731)	(0.0680)
Distance (Log)	−1.747	−2.188*	−2.388*	−1.632	−1.441	0.482**	0.466**	0.453**	0.493**	0.469**
	(1.240)	(1.256)	(1.269)	(1.405)	(1.157)	(0.217)	(0.202)	(0.206)	(0.230)	(0.208)
Language (Dummy)						0.894*	0.892*	0.926*	0.904*	0.907*
						(0.496)	(0.513)	(0.522)	(0.508)	(0.503)
Colony (Dummy)						0.0993	0.0676	0.0954	0.0883	0.106
						(0.515)	(0.539)	(0.520)	(0.527)	(0.499)
Observations	691	693	693	693	691	688	690	690	690	688
R-squared	0.220	0.215	0.223	0.221	0.228	0.207	0.210	0.207	0.208	0.206

	Germany					UK				
	1 Governance	2 Corruption	3 Stability	4 Democracy	5 Human Rights	1 Governance	2 Corruption	3 Stability	4 Democracy	5 Human Rights
Governance (Index)	0.289**					0.115				
	(0.128)					(0.0812)				
Corruption (Index)		0.0733					0.0787			
		(0.196)					(0.0887)			
Stability (Index)			0.345***					0.192**		
			(0.132)					(0.0886)		
Democracy (Index)				0.351**					0.172**	
				(0.149)					(0.0865)	
Human Rights (Index)					0.0758					−0.0887
					(0.0794)					(0.0715)
Political Alignment (Index)	0.330	0.355	0.425	0.217	0.329	−0.233	−0.182	−0.197	−0.269	−0.0318
	(0.377)	(0.374)	(0.369)	(0.398)	(0.357)	(0.224)	(0.210)	(0.206)	(0.208)	(0.205)
Bilateral Trade (Log)	0.0597	0.118	0.0821	0.0523	0.119	−0.101**	−0.101**	−0.113**	−0.142***	−0.0442
	(0.103)	(0.100)	(0.0995)	(0.112)	(0.0968)	(0.0472)	(0.0470)	(0.0498)	(0.0548)	(0.0517)
Resources (% of GDP)	0.0180	0.0145	0.0179	0.0159	0.0130	0.0134	0.0145	0.0151	0.0123	0.0125
	(0.0121)	(0.0113)	(0.0118)	(0.0117)	(0.0108)	(0.0115)	(0.0116)	(0.0116)	(0.0112)	(0.0113)
GDP per Capita, PPP (Log)	0.126	0.110	0.0617	0.164	0.123	−0.247***	−0.242***	−0.257***	−0.158*	−0.305***
	(0.151)	(0.148)	(0.148)	(0.155)	(0.149)	(0.0823)	(0.0843)	(0.0864)	(0.0854)	(0.0871)
Population (Log)	0.925***	0.802***	1.004***	0.841***	0.812***	0.940***	0.910***	0.992***	0.943***	0.832***
	(0.220)	(0.173)	(0.245)	(0.208)	(0.203)	(0.0686)	(0.0688)	(0.0724)	(0.0666)	(0.0721)
Distance (Log)	−0.243	−0.0612	−0.237	−0.327	−0.110	0.833***	0.901***	0.790***	0.827***	0.943***
	(0.281)	(0.284)	(0.266)	(0.280)	(0.279)	(0.268)	(0.265)	(0.269)	(0.278)	(0.273)
Language (Dummy)						1.062***	1.033***	1.059***	1.143***	0.985***
						(0.202)	(0.189)	(0.198)	(0.212)	(0.191)
Colony (Dummy)	0.512***	0.409**	0.607***	0.523***	0.451**	0.529**	0.593***	0.574***	0.406**	0.623***
	(0.198)	(0.208)	(0.223)	(0.203)	(0.191)	(0.216)	(0.204)	(0.209)	(0.202)	(0.220)
Observations	683	685	685	685	683	605	607	607	607	605
R-squared	0.133	0.124	0.146	0.140	0.123	0.349	0.354	0.356	0.354	0.358

	US				
	1 Governance	2 Corruption	3 Stability	4 Democracy	5 Human Rights
Governance (Index)	0.0835				
		(0.0529)			
Corruption (Index)		0.0933			
		(0.0681)			
Stability (Index)			0.0419		
			(0.0597)		
Democracy (Index)				0.0584	
				(0.0552)	
Human Rights (Index)					0.0471
					(0.0492)
Political Alignment (Index)	0.156	0.184	0.177	0.163	0.154
	(0.160)	(0.159)	(0.158)	(0.158)	(0.160)
Bilateral Trade (Log)	−0.0613**	−0.0637**	−0.0531*	−0.0635**	−0.0528*
	(0.0306)	(0.0308)	(0.0293)	(0.0311)	(0.0311)
Resources (% of GDP)	0.00173	0.00291	0.000613	0.000921	0.000131
	(0.00470)	(0.00473)	(0.00433)	(0.00473)	(0.00453)
GDP per Capita, PPP (Log)	0.0630	0.0631	0.0608	0.0815	0.0672
	(0.0759)	(0.0740)	(0.0740)	(0.0737)	(0.0763)
Population (Log)	0.866***	0.853***	0.850***	0.847***	0.850***
	(0.0551)	(0.0554)	(0.0599)	(0.0514)	(0.0558)
Distance (Log)	1.283***	1.309***	1.308***	1.314***	1.324***
	(0.195)	(0.194)	(0.202)	(0.192)	(0.192)
Language (Dummy)	0.113	0.116	0.126	0.110	0.118
	(0.117)	(0.117)	(0.117)	(0.114)	(0.117)
Colony (Dummy)					
Observations	686	688	688	688	686
R-squared	0.491	0.495	0.496	0.489	0.491