

# Buying Monetary Status:

## Chinese Foreign Aid and the Rise of the Renminbi

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### Abstract

*How do states attain monetary status? States can attain monetary status by taking actions that promote the use of their currency. By linking diversification into its currency with policies that benefit the investing state, a reserve currency issuer can promote its currency even if the economic factors of the currency alone are insufficient to attract other nations to invest. Scholars have long studied the influence geopolitical and security considerations have on the rise and persistence of reserve currencies. However, security guarantees are not the only commodity reserve currency issuers can leverage to enhance their monetary status. I propose that foreign aid is an alternative tool that a reserve currency issuer can use to encourage states to invest in its currency. Using an instrumental variable, I demonstrate how China has used foreign aid to induce other nations to invest in the renminbi and thereby enhance its monetary status. My findings show that the probability that a country will adopt the renminbi as a reserve currency increases as the number of Chinese-financed aid projects the state receives increases. When a state's currency lacks the economic factors to achieve international reserve currency status, states can turn to foreign aid to buy monetary status.*

## Introduction

In November 2015, the Executive Board of the International Monetary Fund (IMF) approved the inclusion of China's currency, the renminbi (RMB), in the Special Drawing Rights basket—a move that effectively codified the RMB as one of the world's top reserve currencies. However, China's rise to a top international reserve currency issuer is peculiar. Economic policies aimed at insulating its economy from capital flow volatility and allowing Chinese officials to manipulate financial markets have significantly hampered the RMB's potential of being a widely used reserve currency. Additionally, having no bilateral military alliances, China has not leveraged what has traditionally been a reserve currency issuer's greatest geopolitical tool to promote the use of its currency—security guarantees (Calleo 1982; Gavin 2004). Liao and McDowell (2016) argued that initial investors in the RMB diversified to include the currency because the RMB provided states with the symbolic value of expressing a preference for a revised, less US-centric, international order. However, investing in any reserve currency is costly. Therefore, it is puzzling as to why states, particularly developing nations, would be willing to bear the costs of being an early holder of the RMB if the only benefit is symbolism. Being an early investor in the RMB has been a costly venture for states with seemingly limited benefits. Nonetheless, China has proven successful in getting central banks to make that investment.

*How can states attain monetary status?* States attain monetary status by issuing an international reserve currency to be held by central banks and used to make international transactions. Most of the research on monetary status has come from economics, where factors like economic size, openness, network externalities, and inertia are used to explain the rise of specific national currencies to the status of an international reserve currency (Helleiner and

Kirshner 2009; Eichengreen et al. 2017; Heller and Knight 1978). These factors also explain the persistence of this status, even when the underlying economic conditions for their emergence have eroded. Political scientists have added to this debate by bringing in international politics and security. Geopolitical and security considerations, as well as state preferences on the nature of the international order, also play a role in enhancing monetary status (Strange 1971; Eichengreen et al. 2019; 1987; Ikenberry 2001; Liao and McDowell 2016; Gilpin 1987; Ikenberry 2001; 2019). While security guarantees have often been linked to reserve holdings, these are not the only commodities a reserve currency issuer can leverage to enhance its monetary status. The present study proposes that foreign aid is an alternative tool that a reserve currency issuer can use to encourage central banks to diversify into its currency.

Despite the research on how foreign aid can benefit donor nations domestically and advance foreign policy objectives abroad, researchers have not examined how foreign aid can be used to increase a state's monetary status (Morsy 1986; Broz 2005; Milner and Tingley 2010; 2011). I argue that just as donor nations use aid-for-policy deals to compel states to vote a certain way in the United Nations or institute certain pro-donor nation policies, a reserve currency issuer can use foreign aid to induce other nations to invest in its currency (De Mesquita and Smith 2007; Dreher et al. 2008; Morgenthau 1962).

In this paper, using an instrumental variable approach, I demonstrate how China used foreign aid to induce other nations to invest in the RMB, thereby enhancing its monetary status. I find that the probability of a country adopting the RMB as a reserve currency increases with every Chinese-financed aid project a state receives. This holds true for all types of aid projects and when accounting for economic and geopolitical considerations that would influence a state's decision to invest in the RMB. This study offers a new theoretical mechanism behind the rise of

reserve currencies, addresses endogeneity issues by utilizing an instrumental variable approach, merges two novel datasets from the international political economy and foreign aid literature, and, through multiple imputation, addresses missing data issues.

The findings have several important implications. The ability to use foreign aid to promote one's currency opens the door for more states to increase their monetary status. Providing foreign aid is significantly less costly for a state than building up or maintaining its military at a level where it can credibly offer security guarantees. Therefore, foreign aid not only enables emerging powers to become reserve currency issuers but also provides non-military powers that are already reserve currency issuers, such as Japan, the ability to enhance their monetary status further. Countries using foreign aid to promote their currencies can have serious implications for the US, especially as the US foreign aid footprint continues to diminish. As countries diversify away from the USD and settle transactions in other currencies, the almost unrivaled dominance of the USD, along with the inordinate privileges such dominance has provided the US for the last half-century, weakens. While the US' position at the apex of the monetary status hierarchy is not in jeopardy, the rise of the RMB is carving out a more consequential role for China. Furthermore, my findings show another example of how China uses foreign aid to advance its foreign policy interests.

In the following sections, I define monetary status, detail the benefits of acquiring it, and explore existing theories on how reserve currency issuers attain monetary status. In the next section, I introduce the theoretical reasoning for how and why states can use foreign aid to buy monetary status. The subsequent section explores China's quest for status and the existing explanations for being an initial investor in the RMB. Next, I explain how foreign aid has been crucial to the RMB's rise to an international reserve currency. I subsequently discuss the data

sources and empirical strategies employed in my analysis. Finally, I report and discuss the results, and conclude by arguing that my findings show that China utilized foreign aid to buy monetary status.

### **Monetary Status**

*What is monetary status?* States attain monetary status by issuing an international reserve currency to be held by central banks and used to make international transactions. Monetary status can best be viewed along these two dimensions: first, the degree to which a state's currency is held in significant quantities by central banks as part of their foreign exchange reserves, and second, the extent to which a state's currency is used to make international transactions.

Therefore, the monetary status of a reserve currency issuer increases as the number of central banks diversifying into its currency increases and as the use of its currency for international transactions increases. The currencies that are largely held by central banks are typically currencies that are widely used for international transactions, but this is not always the case. Emerging reserve currencies can be held by numerous central banks even if they are not being widely used in international transactions. This can occur for several reasons. Currencies must be widely held before they can be widely used, and while currency issuers can incentivize holding its currency by linking investment to another policy, the economic factors of the currency largely dictate how widely the currency is used.

*Why do states want to issue an international reserve currency?* Being an international reserve currency issuer is an “exorbitant privilege.”<sup>1</sup> The reserve currency issuer can have its own-currency-denominated debt held as foreign reserves, which allows a state to delay economic

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<sup>1</sup> French Minister of Finance Valéry Giscard d'Estaing famously referred to the USD's position as the world's top reserve currency as America's “exorbitant privilege” (Eichengreen 2011).

adjustments, increase business for its financial institution, lower international borrowing costs, increase global prestige, and enhance the state's ability to project military power abroad (Chinn and Frenkel 2005; Cohen 2006, 2012, 2013; Kirshner 2008; McNamara 2008; Eichengreen 2013). Additionally, foreign firms and banks hold not only reserve currency but also bills and bonds from reserve currency issuers (Eichengreen 2011). Foreign banks and firms tend to value the convenience and security of top reserve currencies. Thus, they are willing to pay more to obtain the reserve currency and offer lower interest rates to hold the currency.

The widespread use of a currency also provides the issuer with geopolitical and strategic leverage. Having a sound financial position strengthens a country's foreign policy position because a state that pays less on its debts is better able to finance foreign operations. Reserve currency issuers can also exert leverage over countries that depend on their currency to engage in the global economy (Eichengreen 2011). The US, at the apex of the monetary status hierarchy, has benefited substantially from the almost unrivaled dominance of the USD. While the US faces little risk of being dethroned as the top international reserve currency issuer, the 2008 financial crises, "growing dissatisfaction with the operation of the international monetary system" of other countries (Eichengreen 2011, 6), and a smaller share of the world's economy than it once did have put the USD's singular status in doubt. The same have also provided other major and emerging currency issuers an opportunity to carve out a more consequential role for their own currency—an opportunity that China has readily seized.

### **Attaining Monetary Status**

To attain monetary status, a reserve currency issuer needs central banks to hold its currency and for its currency to be used in international transactions. Central banks invest in a

reserve currency when the benefits of holding reserves of the currency outweigh the costs. A state's central bank, like any financial actor, wants to maximize returns and minimize costs (Eichengreen et al. 2017). Central banks hold reserve currencies to help facilitate international transactions. To minimize international transaction costs, states prefer for their reserve currency to be issued by an important trading partner (Heller and Knight 1978), particularly one on whom they are import dependent (Eichengreen and Mathieson 2000). The most attractive international reserve currencies are those issued by a country that has a large economy, ample trade links, and the capability to provide a stable liquid form of exchange (Eichengreen et al. 2016).

However, while economic factors play a crucial role in the rise of an international reserve currency, geopolitical considerations also have a significant influence. Indeed, "every international monetary regime rests on a particular political order" (Gilpin 1987, 119). International relations scholars have long studied the influence of geopolitical considerations on the rise and persistence of reserve currencies. Strange (1971) argued that the influence of the British state was responsible for the global standing of the sterling. Other studies have linked West German support for the USD in the 1960s to its bilateral security relation with the US (Calleo 1982; Zimmerman 2002; Gavin 2004). States that are close to the US tend to be strong supporters of the USD (Spiro 1999; Posen 2008). Countries that benefit from American military dominance inherently have an interest in supporting the USD's role as an international reserve currency (Norrlof 2010). Eichengreen, Mehl, and Chițu (2019) showed that military alliances "boost the share of a currency in the partner's foreign reserves holdings by 30 percentage points" (1). Reserve currency issuers promote their currency by linking investing in their currency with policies that benefit the investing states. Consequently, even if the economic factors of a currency are insufficient to attract central banks to diversify into the currency, a currency issuer

can still attract investors by providing policies or resources to make the benefits of investing in the currency outweigh the costs.

### **Buying Monetary Status: An Aid for Policy Approach**

Adding to the literature, I argue that reserve currency issuers can use foreign aid to incentivize states to invest in their currency and thereby buy monetary status. Allocating foreign aid to other nations has developed into a crucial tool that states use to advance their interests at home and abroad. Nations give countries foreign aid to achieve domestic and international political objectives and to gain international or regional status and influence. Donor nations use foreign aid to help domestic industries by requiring recipient nations to open their markets for donor nation exports and by mandating that a certain percentage of the aid they allocate be used to buy products from the donor nation (Morsy 1986; Broz 2005; Lancaster 2008; Milner and Tingley 2009; 2011). The allocation of foreign aid can be instrumental for donor nations in achieving their foreign policy goals. States use foreign aid to bring conflicts to an end, buy United Nations Security Council votes, maintain access to natural resources, and influence the policies of recipient states (Vreeland and Dreher 2014; 1986; Lancaster 2008; Dreher et al. 2008; 1989; Kuziemko and Werker 2006; Yasutomo 1989; Morsy 1986; 2008; Vreeland and Dreher 2014; Alexander and Rooney 2019). Building on the foreign aid literature, I argue that a reserve currency issuer can attract investors by providing states that invest in its currency with foreign aid to make the benefits of investing outweigh the costs.

Foreign aid is allocated largely with consideration for the political and strategic concerns of the donor. The basic foreign aid-for policy model (De Mesquita and Smith 2007) argues the following:



- 1) A donor nation offers a recipient state an aid-for-policy deal. The deal is a transfer of  $x$  resources in exchange for a pro-donor-state policy.
- 2) The recipient state accepts or rejects the aid offer. If the state accepts the offer, the foreign aid is transferred, and the recipient state enacts the pro-donor policy.

The amount of aid the donor nation offers and the recipient state's decision to accept the aid-for-policy deal are dependent on the value each actor places on the aid and policy. The recipient state will only accept the aid if the value of the aid is greater than the cost of enacting the pro-donor policy. The donor state will only provide foreign aid if the benefits of the policy being enacted are greater than the costs of the aid.

Foreign aid is a valuable strategic resource for donor nations because it is highly desired by recipient states. Foreign aid provides leaders of recipient states with a source of nontax revenue that can be distributed to key constituencies. It also allows these leaders to provide more goods and services to their constituents without raising taxes (Morrison, 2009). Assuming that leaders want to stay in power, foreign aid is an ideal resource for a leader to use to satisfy their winning coalition since the donor nation is fronting the bill (De Mesquita 2009). Therefore, leaders can provide public goods to their citizens or private goods to key supporters without angering any constituency by raising taxes to pay for those goods. Chinese foreign aid is particularly beneficial for leaders. Unlike foreign aid from Western donors, which is typically conditional, as donors retain significant control over how the aid is spent, Chinese foreign aid has no conditionality. Recipient nations also have more discretion on where Chinese aid is allocated. As such, leaders can more easily funnel Chinese aid toward politically important constituencies and regions (Dreher et al. 2021).

Since leaders desire foreign aid because it provides them with substantial domestic benefits, so long as a reserve currency issuer provides enough foreign aid to offset the costs of being an early investor in its currency, a leader of an aid recipient state has a strong incentive to accept an aid-for-policy deal with a donor nation. Wanting the benefits foreign aid offers as a nontax revenue, leaders will accept foreign aid from a reserve currency issuer, and in return, they will use their power to induce their state's central bank to invest in the donor nation's currency.

Utilizing foreign aid to incentivize other states to invest in its currency will be a particularly important tool for an emerging monetary power. Providing foreign aid is a cost-effective tool that a reserve currency issuer can use to increase its monetary status, and one that emerging powers can feasibly employ. Additionally, an aid-for-policy deal allows states that invest in an emerging power reserve currency to receive the benefits of the deal immediately. These states receive foreign aid before they invest in a reserve currency; the reserve currency issuer has no opportunity to renege on the agreement. Furthermore, so long as holding reserves of the donor's currency is sufficiently valuable to the donor nation, the recipient state can expect to continue to receive aid in return for continuing to hold the currency. However, this is not the case with security agreements, which tend to be characterized by a credible commitment problem. States that invest in an emerging monetary power's currency in exchange for security guarantees cannot be sure that the latter will uphold its end of the bargain if the former are attacked. Therefore, foreign aid can be preferable over security guarantees for both emerging monetary power and the nation investing in its currency. For emerging monetary powers, providing foreign aid will be less costly than building up its military to a point where they can credibly provide security guarantees. Additionally, providing foreign aid will be less costly than

providing security guarantees if called upon. For states investing in the currency, the benefits of foreign aid are immediate and guaranteed.

In summary, I argue that a reserve currency issuer can use foreign aid to incentivize other states to hold reserves of its currency. This scenario allows reserve currency issuers a mechanism to attain monetary status even when the economic factors of its currency are insufficient in attracting other nations to invest. In return for foreign aid, aid recipient states will invest in the donor nation's currency. Leaders of aid recipient states highly desire the nontax revenue benefits that foreign aid offers, and therefore, they have an incentive to accept these deals and induce their state's central banks to invest in the emerging monetary power's reserve currency. To show that reserve currency issuers can use foreign aid to encourage other nations to invest in its currency, I explore China's quest for monetary status, the limitations of the current explanations for RMB adoption, and how foreign aid was a crucial factor in the RMB's rise to an international reserve currency.

### **China's Quest for Monetary Status**

China has worked diligently to increase its international status, its role as a major international player, and its monetary status. China's push to open its financial markets to foreigners was part of its efforts to be included in the IMF's Special Drawing Rights basket, which provides currency issuers with many benefits. The inclusion gives the issuer international recognition as a member of an elite club of monetary superpowers. The Special Drawing Rights basket consists of only five currencies: the USD, the GBP, the EUR, the JPY, and as of 2016, the RMB. It also offers a currency international recognition that it is safe, reliable, and freely usable.

Currencies in the Special Drawing Rights basket are also the only ones that countries can receive as part of IMF loans. These factors increase the usability of the currency and status of the issuer.

Having the second-largest economy, China wanted the RMB to be a globally recognized reserve currency. However, to be included in the Special Drawing Rights basket, currencies must meet two criteria. First, the currency issuer must be one of the top five world exporters and an IMF member or a monetary union that includes IMF members. Second, the currency must be freely usable, meaning that it is widely held and used to make payments for international transactions. While China's large economy ensured that they met the first requirement, to get the RMB included in the Special Drawing Rights basket, China had to engage in an aggressive campaign to promote the world use of the RMB.

Prior to 2010, the People's Bank of China permitted only a handful of foreign central banks to invest in Chinese central government debt. In 2010, China launched a pilot program that expressly permitted foreign central banks (under a quota system) to invest in Chinese interbank bond markets. China also began to allow foreign institutions to invest in RMB-denominated assets via bond purchases in offshore hubs (Liao and McDowell 2016). Subsequently, RMB-based trade increased from "essentially nil in 2009 to more than \$300 billion in the first three quarters of 2012" (Liao and McDowell 2015, 401).

Historically, the rise and fall of a country's economic power dictate the international use of its currency in trade (Bergsten 1975). However, although China has become a global economic power, the power of its currency has lagged. This has been a "direct consequence of Chinese policies," identified by Liao and McDowell (2015, 403) as the country's "controlled exchange rate, capital controls, capital account inconvertibility, undeveloped domestic financial markets, and a domestic political regime of financial repression via the government's control of

interest rates and credit allocation through state-owned banks.” China puts restrictions on its currency to insulate its economy from capital flow volatility and allow Chinese officials to manipulate financial markets. Consequently, they have also limited the RMB’s international use. The states that first invested in the RMB could not use the currency in foreign exchange markets, nor to buy merchandise from countries other than China or pay foreign banks and bondholders (Eichengreen 2011). Since the economic factors of the RMB prevented the currency from being used as an international reserve currency, why did 37 central banks become early adopters?

## **Explanations for RMB Adoption**

### ***Geopolitical Considerations***

Security guarantees have been a crucial tool used by reserve currency issuers to incentivize investing in their currency. However, lacking any formal bilateral military agreements, security guarantees are clearly not a tool China could rely upon. Nevertheless, geopolitical considerations played an important role in the demand for the RMB as a reserve currency. The decision to be an early adopter of the RMB was as much a political move as it was an economic one. Being an early investor in RMB was “symbolic of a state’s interest in a revised international order that is less US-centric” (Liao and McDowell 2016, 277). Employing United Nations General Assembly ideal points data, Liao and McDowell (2016) reported that states with a larger ideal points distance with the United States and a smaller ideal points distance with China were more likely to adopt the RMB as a reserve currency.

China, the reserve currency issuer, benefits greatly, but the only benefit received by states that diversify into the RMB is the goodwill feeling of sending a political signal—a costly act. The first states that invested in RMB reserves invested in a currency that was “not fully

convertible for capital account transactions” and, therefore, “assets denominated in the currency remained formally illiquid” (Liao and McDowell 2016, 273). As such, it is puzzling why states, particularly developing nations, would be willing to pay the costs of being an early holder of the RMB if the only benefits of doing so were symbolic.

### ***Chinese Foreign Aid***

I argue that in pursuit of monetary status, China used foreign aid to get states to diversify into the RMB. China has a long history of connecting foreign aid packages to policy concessions from recipient states. Foreign aid has been a crucial tool for China in its decades-long competition with Taiwan for diplomatic recognition. In return for diplomatic recognition, China provides countries with substantial long-term foreign aid packages (Rich 2009; Atkinson 2010). Just as Chinese foreign aid can buy diplomatic recognition, it can also buy monetary status. As shown in Figure 1, there is a strong correlation between holding RMB reserves and receiving Chinese foreign aid. Of the countries that held RMB-denominated assets as of 2014, 64% received some type of aid assistance from China. This figure rises to 82% when excluding members of the Development Assistance Committee,<sup>2</sup> the world’s top foreign aid *donors*.

The restrictions China had on its currency, to insulate its economy from capital flow volatility, made being an early adopter of the RMB a costly venture with limited economic benefits. Early investors could only use the RMB to make international transactions with China, and even then, the RMB was seldom used. For example, in 2014, only 0.2% of Korea’s imports were invoiced in RMB, despite China being Korea’s largest trading partner (Ito and McCauley 2019). Therefore, since the economic factors of the RMB alone were insufficient to attract other

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<sup>2</sup> Eight of the 13 states that held RMB reserves but did not receive Chinese aid were members of the Organisation for Economic Co-operation and Development’s (OECD) Development Assistance Committee (DAC). The DAC is essentially an institutionalized “donors club,” representing the world’s biggest foreign aid donors (Gilady 2018). As major donor powers, these states do not receive foreign aid from any country.



is reverse causation, where holding RMB reserves increases the likelihood of receiving Chinese foreign aid. To account for this endogeneity, I employed the instrumental variable approach developed by Dreher et al. (2016). The data used in the analysis covered 170 countries from 2009 to 2014.<sup>3</sup> Therefore, I restricted the analysis to the years before the RMB's inclusion in the IMF's Special Drawing Rights basket.

## **Data and Methods**

### ***Dependent Variable***

The outcome of interest is whether a state's central bank holds a portion of its foreign exchange reserves in RMB. Since most central banks keep the currency composition of their foreign exchange reserves confidential, I relied on Liao and McDowell's (2016) measurement of diversification into RMB. Liao and McDowell (2016) identified 37 central banks that held assets in the Chinese currency prior to 2015.<sup>4</sup> Six central banks publicly admitted to holding RMB reserves in official reports or press releases.<sup>5</sup> Three central banks confirmed their investments through email exchanges with Liao and McDowell.<sup>6</sup> Liao and McDowell were able to infer that four central banks held RMB reserves based on their investments in China's equities or its onshore interbank bond market.<sup>7</sup> These central banks all maintained approval for Qualified Foreign Institutional Investor quotas. Liao and McDowell (2016, 274–275) argued that it would be “highly unlikely that a central bank would go to the trouble to gain access to this market and then not take advantage of it.” They identified the remaining central banks through media

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<sup>3</sup> Only data on RMB reserves are covered up to 2014.

<sup>4</sup> A list of countries that held RMB assets prior to 2015 can be found in Table A.4 in the appendix.

<sup>5</sup> Australia, Austria, Bolivia, Chile, Macao, and Nigeria

<sup>6</sup> Hong Kong, Namibia, and Uruguay

<sup>7</sup> Lithuania, Norway, Singapore, and Switzerland



reports, following Strange et al.'s (2013) two-stage process for identifying sovereign RMB investors.<sup>8</sup> On two separate occasions via email, they contacted the 173 central banks in their dataset requesting information on RMB investment.

The present study used a dichotomous dependent variable for measuring whether a country's central bank has invested a portion of its foreign exchange reserves in RMB in year  $t + 1$ . This variable is coded as 1 when state  $i$  holds RMB-denominated assets in year  $t + 1$ , and zero otherwise. Following Liao and McDowell (2016), I assumed that if an investment in RMB is reported or confirmed, then the central bank will maintain RMB-denominated assets in their portfolio in the following years. Investing in a reserve currency is costly, and it is unlikely that a central bank would invest in a currency one year only to remove that currency from its portfolio in the next year.

### ***Chinese Foreign Aid***

Unlike Western donors, the Chinese government does not disclose information on the overseas development projects it funds. The Chinese government deems details about its overseas development projects to be a "state secret" (Brautigam 2009, 2). Therefore, China does not publish by-country breakdown of its aid expenditures. To measure how much foreign aid China allocates to countries, I relied on the AidData dataset developed at the research lab at the College of William and Mary. The dataset geolocates Chinese government-financed official committed projects that entered implementation or reached completion between 2000 and 2014.

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<sup>8</sup> Sovereign RMB investors were initially identified through searches using both *Factiva* and *Google Alerts*. After identifying an investor, Liao and McDowell conducted targeted searches in both English and Chinese using the *Google* search engine. They were able to find multiple reports corroborating the initial account in most cases.

In total, the dataset includes 4,304 projects in 138 countries and territories, worth approximately USD 351 billion, that China funded between 2000 and 2014 (Bluhm et al. 2018).

The dataset distinguishes between two types of Chinese official financing: Official Development Assistance and Other Official Flows. Official Development Assistance projects are Chinese foreign assistance projects that meet the OECD's criteria for Official Development Assistance. Therefore, these projects are primarily aimed at development and have a grant element of at least 25%; moreover, the recipient is eligible for Official Development Assistance as defined by the OECD.<sup>9</sup> Other Official Flows are Chinese foreign assistance projects that do not meet the OECD's criteria for Official Development Assistance. Therefore, these projects are either not primarily focused on development, have a grant element less than 25%, or are being provided to a country that is not eligible for Official Development Assistance. If a project fails to meet any of the OECD's criteria for Official Development Assistance, the project is considered an Other Official Flow project. Therefore, Official Development Assistance and Other Official Flows projects can potentially be very similar. For example, the Chinese government providing Sri Lanka a concessional loan of USD 78.2 million in 2013 for a railway project qualifies as Official Development Assistance. However, the Exim Bank of China's USD 200 million loan to Sri Lanka in the same year for a railway extension project is considered Other Official Flows because the loan from the Exim Bank of China did not have a grant element of at least 25%.

While Official Development Assistance is more comparable to Western foreign aid, both types need to be considered given that the Chinese government finances projects under both types. However, Official Development Assistance and Other Official Flows projects should not be treated as equivalent. Therefore, I measured Chinese foreign aid in three ways: analysis with

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<sup>9</sup> Official Development Assistance eligibility is based on a country's income level.

only Official Development Assistance projects, only Other Official Flows projects, and all Chinese financed projects combined. Table A.3 provides examples of the different types of projects financed by China.

I operationalized Chinese aid as the number of unique projects that China financed in country  $i$  in year  $t$ . Ideally, rather than the number of projects that China finances in a country during a year, Chinese foreign aid should be measured by the total amount of money China committed to finance those projects. However, this is not possible because for the majority of projects in the dataset, AidData does not have information on the amount China committed.

### *Alternative Explanations for RMB Adoption and Control Variables*

*International Order Preference.* I used a measure developed by Bailey, Strezhnev, and Voeten (2015)—a country's *UNGA Ideal Point Distance* with China in a given year—to measure a state's preference with respect to the international world order. Using voting data from the United Nations General Assembly, Bailey, Strezhnev, and Voeten (2015) created a dynamic ordinal spatial model that estimates national ideal points that reflect a state's position in the international world order. Their measure offers a valid intertemporal comparison since it can distinguish UN agenda changes from changes in state preferences. Therefore, it is an improvement upon the conventional dyadic similarity indicators, such as affinity or S-scores. As a robustness check, I employed conventional measures of voting affinity with China.

A limitation of using ideal point estimates is that they only capture revealed preferences rather than a state's underlying true preference. However, since General Assembly votes are nonbinding, Bailey, Strezhnev, and Voeten (2015) argued that strategic voting is not a prevalent practice. Therefore, if states are not voting strategically, capturing their revealed preferences

should not be as problematic because states have little incentive to not vote their true preference. Additionally, their ideal point estimates correlate with democratization, financial liberalization, and government ideology, as expected. For example, Bailey, Strezhnev, and Voeten (2015) demonstrated that countries are less likely to democratize and liberalize their financial regulations the farther their ideal point distance is with the US. Therefore, although not a perfect measure, General Assembly ideal point estimates capture a state's international order preferences.

*Trade Dependence.* States want to hold a reserve currency that they can use to make international transactions. Therefore, states have an incentive to hold reserves of a currency from a state with whom they trade heavily (Eichengreen and Mathieson 2000). The more a country imports from a reserve currency issuer, the more likely it is that the nation will hold that currency in its reserves (Dellas and Bang Yoo 1991). This is because reserve managers “want highly liquid assets denominated in the currency with which they generally transact in global markets” (Liao and McDowell 2016, 278). Therefore, countries that are import dependent on China may choose to diversify into the RMB because of this dependence. Using data from the UN Comtrade, I controlled for a country's import and export dependence on China.

*Total Reserves.* While reserve managers are risk averse and want a safe liquid asset, they also want a return on their investment, or at the very least, for their investment to hold value over time. USD-denominated assets and other major currencies, such as the EUR, are safe, but their returns are marginal. Therefore, countries that have large stockpiles of foreign reserves and, therefore, already have their “rainy day” fund may choose to diversify into a riskier currency, such as the RMB, because of the potential for higher returns (Yuanyuan 2014). To account for this, I controlled for a state's total reserves in months of exports.

*Bilateral Swap Agreements.* Liao and McDowell (2015) found the bilateral currency swap agreements comprise a crucial element in China’s strategy to internationalize the RMB. However, the first central banks that China had bilateral currency swap agreements with could not “use the RMB to intervene in foreign exchange markets” nor use the currency to “import merchandise from third countries or to pay foreign banks and bond holders” (Eichengreen 2011, 145). Bilateral currency swap agreements served as a signal for China’s monetary ambition rather than a practical measure to make the RMB a widely used reserve currency. Nevertheless, I controlled for bilateral currency swap agreements using data from Liao and McDowell (2015; 2016).

*Other Control Variables.* I controlled for countries’ *GDP* and *GDP per capita* (in constant 2005 USD) using WDI data. I also controlled for states’ geographic *distance* to China (in thousands of kilometers) utilizing CEPII’s GeoDist for dyadic distance data (CEPPI 2011). Finally, I controlled for countries’ *regime type* based on their polity score and amount of *Chinese foreign direct investment* received each year.

### ***Multiple Imputations***

Missing data tend to characterize international relations datasets, particularly those involving developing countries. Therefore, because many developing countries hold RMB reserves and developing countries are the most likely recipients of foreign aid, dropping missing cases through listwise deletion would bias the results. Instead, I employed multiple imputations to address the missing data in my control variables. Using the R package Amelia II (Honaker, King, and Blackwell 2011), I created five multiple-imputed datasets and fit my regression models to each of the datasets using the Zelig R package (Imai, King and Lau 2009). I combined

my results using Rubin's rules (Rubin, 1987). Multiple imputation is preferable to mean substitution or single imputation, which can be biased and/or inefficient, because missing values can be filled with different imputations that reflect the uncertainty of the missing data (Honaker, King, and Blackwell 2011).

### **Instrumental Variables**

To account for endogeneity issues when testing to see if China uses foreign aid to compel other states to increase their RMB reserves, I used an empirical approach inspired by Dreher et al. (2016; 2017) and Bluhm et al. (2018). I instrumentalized Chinese aid projects by the interaction of Chinese steel production with a country's probability of receiving a Chinese-financed development project in a given year. Following Bluhm et al. (2018), I measured the Chinese production of crude steel as the log of thousands of metric tons in year  $t-1$ , obtained from the World Steel Association (2000; 2010; 2016). Adapting Dreher et al.'s (2018) instrument, I measured a country's probability of receiving aid from China as the share of years before my sample (2000–2008) when a state received positive amounts of Chinese aid. By interacting a time-varying exogenous variable (steel production) with an endogenous variable (probability of aid) that varies only across countries, my instrument accounted for variations both across countries and over time. This instrumental approach “resembles the supply shock instruments commonly used in trade and labor economics” (Bluhm et al. 2018, 22).

The intuition behind this approach is that the Chinese government has long viewed steel as a strategic commodity and, therefore, maintains excess production capacity. As a result, China maintains a steel surplus, some of which is used for aid projects. Therefore, “aid inputs are higher a year after production volumes were high, and Chinese subsequent provision of foreign

aid is also higher” (Bluhm et al. 2018, 7). When the Chinese government has more steel, they engage in more aid projects in the following year. China has been aggressively using foreign aid to expand its commercial interests with its Belt and Road Initiative (BRI), also known as the New Silk Road. The BRI is one of the most ambitious infrastructure projects ever conceived. It is estimated that the BRI will cost China north of USD one trillion by the time it is complete. Chinese steel is being used in China’s aid projects to build “bridges, new trains and locomotives, high-speed railroads, ports, highways, oil and gas pipelines, telecom and electricity grids” (Brazys and Vadlamannati 2020, 9). Additionally, since 1969, China, in what is often referred to as “Stadium Diplomacy,” has either built or renovated approximately 60 football and athletic stadiums worldwide, most of which are located in sub-Saharan Africa. China has doled out over USD 38 billion to build these stadiums because they are “highly visible reminders of Chinese generosity” (Lancaster 2008, 32). Both the BRI and China’s “Stadium Diplomacy” are heavily reliant on steel. Therefore, the Chinese production of crude steel is an ideal instrument for measuring Chinese foreign aid.

An instrumental variable’s validity depends on the instrument’s relevance and exclusion criteria. As a rule of thumb, if the joint F-statistic in the first stage of the IV regressions exceeds 10, then the instrument is considered relevant (Staiger and Stock 1997). The results in Table 2 confirms the relevance of my instrument. The study thus rejected the null hypothesis of the weak instrument test.

The excludability of my instrument rests on the assumption that Chinese steel production has no direct effects on a state’s decision to diversify into the RMB. Instead, the only effect Chinese steel production should have on a state’s decision to hold RMB reserves is through foreign aid. This instrument may be misconstrued to violate the exclusion restriction because

excess steel production could be correlated with China's overall exports, steel exports, or foreign direct investment. Potentially, states that receive more Chinese aid projects could be states that also have close trade ties with China or receive substantial Chinese foreign direct investment. Alternatively, countries may choose to invest in the RMB when China has a steel surplus because they are importing more steel from China during those years. This implies that the effect of aid on a state's decision to invest in the RMB is driven by trade and investment rather than aid. To address this concern, I controlled for a country's import and export dependence on China and the yearly volume of Chinese foreign direct investment.

Additionally, one might be concerned that Chinese steel production and RMB adoption could be correlated with the geographic distance between China and another state. The logic being that states in close proximity to China may have an increased incentive to invest in the RMB, and being closer to China, importing large amounts of steel to these states would be less costly. However, this should not be a concern. First, I controlled for a state's distance from China. Furthermore, the initial states that diversified into the RMB are not clustered close to China, as shown in Figure 1. There are countries on every continent, except North America, that adopted the RMB, and Chinese foreign aid recipients are on every continent.

Other concerns are that the instrumental variable should not violate the Stable Unit Treatment Value Assumption (SUTVA) and that the instrument should have a monotonic effect on Chinese foreign aid allocation (Sovey and Green 2011). The initial investors in the RMB invested in a currency that was not fully convertible; thus, violations of SUTVA are not a concern. Countries that held RMB reserves could not use the currency to import merchandise from other countries (Eichengreen 2011). Therefore, other countries that received foreign aid (the treatment) and, as a result, invested in the RMB would not affect another state's (who did



not receive aid) decision to invest in the currency. Regardless of whether a state's neighbor or trading partner held RMB reserves, an alternative currency would be needed to make any international transactions with that state. Furthermore, my instrument showed a monotonic effect on Chinese foreign aid allocation. Having an excess of steel will not enhance China's ability to finance foreign aid projects in some countries but have a negative effect on other nations. Since the purpose of the BRI is to build the global infrastructure necessary to connect over 60 countries and two-thirds of the world's population, with China at its center, excess steel should have a positive effect on Chinese foreign aid for all recipients, regardless of geographical distance (Chatzky 2019).

In summary, the instrument is relevant. It is not weak and, therefore, does not suffer from bias arising from under- or weak identification. The instrument does not violate SUTVA, and it has a monotonic effect on Chinese foreign aid. Additionally, after controlling for import and export dependence, Chinese foreign direct investment, and geographical distance, the instrument is exogenous and unrelated to unmeasured causes of RMB adoption. All of these provide support for my argument that the interaction between China's steel production and a country's probability of receiving Chinese foreign aid is a valid instrument in my analysis.

### **Empirical Design**

To test the effect of foreign aid on the probability of diversifying into the RMB, I employed a series of models. Given that my dependent variable is dichotomous, I ran a logistic regression model. However, since the relation between Chinese foreign aid and RMB adoption could be endogenous, I also employed a two-stage least squares regression model.<sup>10</sup> To address

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<sup>10</sup> Since the dependent variable is binary, a limitation of this approach is that fitted values are not constrained to lie in the unit interval. Predicted probabilities from linear probability models (LPMs) could be below 0 and above 1.

potential problems with clustering in years and countries, my models included year-fixed effects and clustered standard errors.<sup>11</sup>

I estimated the following first-stage regressions:

$$\begin{aligned} ChnAid_{it} = & \delta(Steel_{t-1} \times \rho Aid_i) + \beta_1 IdealPointDist_{it} + \beta_2 BSA_{it} + \beta_3 \log(ChnImp\_Dep)_{it} \\ & + \beta_4 \text{Log}(ChnExpDep)_{it} + \beta_5 res\_imp_{it} + \kappa_{it} + \lambda_{it} + \varepsilon_{it} \end{aligned}$$

The instrument for  $ChnAid_{it}$  is the interaction of Chinese steel production (logged) at  $t-1$  and the probability of a country receiving Chinese aid. I lagged Chinese steel production by a year because provisions of Chinese foreign aid in year  $t$  are dependent on the production volume of steel in year  $t-1$  (Bluhm et al. 2018). A country's probability of receiving aid from China is measured as the share of years before my sample (2000–2008) when a state received positive amounts of Chinese aid.<sup>12</sup> Specifically, the probability of receiving aid from China is  $\rho Aid_i = \frac{1}{9} \sum \rho Aid_{it}$ , where  $\rho Aid_{it}$  is a binary variable that equals 1 when country  $i$  received a positive amount of Chinese aid in year  $t$  and 0 otherwise (Dreher et al. 2016).

The second-stage regression (main equation of interest) is expressed as follows:

$$\begin{aligned} RMBLead_{it+1} = & \beta_1 \widehat{ChnAid}_{it} + \beta_1 IdealPointDist_{it} + \beta_2 BSA_{it} + \beta_3 \log(ChnImp\_Dep)_{it} \\ & + \beta_4 \text{Log}(ChnExpDep)_{it} + \beta_5 res\_imp_{it} + \kappa_{it} + \lambda_{it} + \varepsilon_{it} \end{aligned}$$

where  $RMBLead_{it+1}$  is the outcome variable of interest measured at  $t+1$ . Leading the dependent variable addresses problems with simultaneity.  $\widehat{ChnAid}_{it}$  represents either the number of Official Development Assistance projects, Other Official Flows projects, or all Chinese financed projects country  $i$  received in year  $t$ . **UNGA Ideal Point Distance** ( $IdealPointDist$ ) measures the absolute

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However, despite predicted probabilities from LPMs being flawed, constant marginal effects are indistinguishable or preferable to those from binary probit or logit models (Angrist and Pischke 2008; Wooldridge 2016)

<sup>11</sup> I did not use state-fixed effects because of the lack of within-country variation in my independent variable. A total of 55 of 170 countries in my dataset never received aid.

<sup>12</sup> The data in my analysis were from 2009 to 2013. Therefore, the probability of a country receiving aid from China is based exclusively on the years prior to the period covered in my analysis.

distance between the ideal points of country  $i$  and China in year  $t$ . Therefore, an ideal point distance of 0 represents country  $i$  and China voting identically in year  $t$ . **Import dependence** ( $ChnImp\_Dep$ ) is operationalized as a country's imports of goods from China in year  $t$  divided by the country's total imports from the world in year  $t$ . **Export independence** ( $ChnExp\_Indep$ ) is operationalized as a country's exports of goods to China in year  $t$  divided by the country's total exports from the world in year  $t$ . **Bilateral Swap Agreement** ( $BSA$ ) is measured as a dichotomous variable coded as 1 if a country has an active BSA with China in year  $t$ , and 0 otherwise.  $\kappa_{it}$  is a vector of control variables measured at time  $t$  for country  $i$ .  $\lambda_t$  represents year-fixed effects, and  $\varepsilon_{it}$  is the error term.

## Results

### *Logit Models*

Table 1 summarizes the results for the logistic models when the actual (*not instrumented*) number of aid projects is the key independent variable. The logit estimates support this hypothesis. All types of projects combined and Official Development Assistance on their own have a positive and statistically significant association with holding RMB reserves. However, Other Official Flows projects on their own are positive but statistically insignificant. Figure 2 shows the changes in the predicted probability of holding RMB reserves as the number of projects a state receives from China increases. Additionally, *UNGA ideal point distance* is negative and statistically significant across all models. As a state's UNGA ideal point distance from China increases, the likelihood that the same state invests in RMB declines. Furthermore, I found support for one other alternative explanation for RMB adoption.

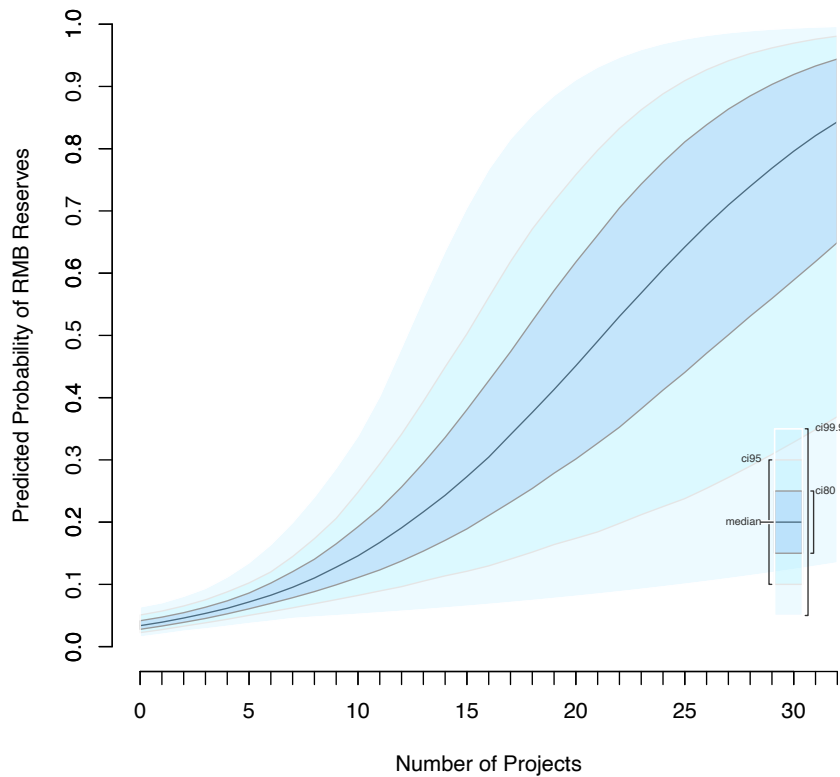
**Table 1: Logit Models**

	Dependent Variable: RMB Reserves in Year t+1		
	ODA-Like	OOF-like	All Projects
All Projects	0.158* (0.082)	---	---
ODA-like	---	0.257** (0.121)	---
OOF-like	---	---	0.215 (0.163)
UNGA Ideal Point Distance	-1.341*** (0.371)	-1.406*** (0.383)	-1.339*** (0.362)
BSA	1.188* (0.674)	1.291* (0.681)	1.042 (0.661)
Reserves in Months of Imports	0.150 (0.237)	0.155 (0.234)	0.111 (0.232)
FDI	0.026 (0.065)	0.017 (0.062)	0.023 (0.065)
Import Dependence	0.398 (0.400)	0.364 (0.404)	0.479 (0.408)
Export Dependence	0.027 (0.117)	0.026 (0.118)	0.025 (0.112)
Regime Type	0.063 (0.047)	0.063 (0.047)	0.066 (0.047)
Year Fixed Effects	Yes	Yes	Yes
Observations	850	850	850
Log Likelihood	-207.532	-205.250	-212.837
Akaike Inf. Crit.	447.063	442.500	457.675

*Note:* Clustered standard errors are in parentheses. Year fixed effects and the constant are included in model, but results omitted to facilitate presentation. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Bilateral currency swap agreements (*BSA*) have a positive and statistically significant association with the likelihood that a country will invest in RMB. However, the three economic considerations for RMB adoption, namely, *import dependence*, *export dependence*, and *reserves in months of exports*, are statistically insignificant across all models.

**Figure 2: Substantive Effects**



*Note: The figure shows the predicted probability of holding RMB reserves as the number of projects (all types) a state receives from China increases.*

These null findings for economic considerations for RMB adoption are in line with my theory. The data shows that because the economic factors of the RMB were insufficient in attracting other nations to invest in the currency, China was compelled to link diversifying into the RMB with foreign aid.

Although the logit models supported my hypothesis, they did not prove a causal connection between financed projects and RMB adoption. The relation may be endogenous; China may choose to finance projects in countries that had already invested in the RMB. Therefore, I employed an instrumental variable approach.

### *Instrumental Variable Model Results*

Table 2 provides the results of the two-stage least squares models, which showed strong support for my hypothesis: the more projects China finances in a country, the more likely it is that the same country adopts the RMB as a reserve currency. This is true across project types. Official Development Assistance, Other Official Flows, and all financed projects combined all showed a highly statistically significant positive relation with a country's adoption of the RMB. For every project that China finances in a country, the probability that the same country will adopt the RMB as a reserve currency increases by 3.5%. Therefore, if China committed in a year to finance 10 projects in a country, the probability that the country will invest in RMB, holding all else equal, increases by 35%. From 2009 to 2013, most projects China financed in a country during a particular year was 32, and they financed 10 or more projects in a country 20 times. Furthermore, the positive and statically significant effects of Chinese-financed projects were not dependent on project type. For every Official Development Assistance project that China finances in a country, the probability that the country will adopt the RMB as a reserve currency increases by 3.8%. Unlike in the logit models, Other Official Flows showed a positive and statistical significance. The probability that a country will adopt the RMB as a reserve currency increases by 17.8% for every Other Official Flows project that China finances.

The *UNGA ideal point distance* was negative and statistically significant across all models, confirming the findings of Liao and McDowell (2016). As a state's ideal point distance with China increases, the likelihood that they will diversify into the RMB decreases. Only one alternative explanation for the RMB adoption was statistically significant at the conventional level across all models.

**Table 2: Two-Stage Least Squares Models**

<i>Dependent variable:</i>	<i>First Stage</i>			<i>Second Stage</i>		
	All Projects	ODA-like	OOF-like	RMB Reserves in Year t+1		
	(1)	(2)	(3)	(4)	(5)	(6)
$Steel_{t-1} \times \rho Aid_i$	0.293*** (0.043)	---	---	---	---	---
$Steel_{t-1} \times \rho ODA Aid_i$	---	0.252*** (0.036)	---	---	---	---
$Steel_{t-1} \times \rho OOF Aid_i$	---	---	0.113*** (0.031)	---	---	---
All Projects	---	---	---	0.035*** (0.010)	---	---
ODA-like Projects	---	---	---	---	0.038*** (0.011)	---
OOF-like Projects	---	---	---	---	---	0.178*** (0.047)
UNGA Ideal Point Distance	-0.272 (0.191)	-0.098 (0.137)	-0.123 (0.083)	-0.065** (0.020)	-0.073*** (0.020)	-0.055** (0.023)
BSA	-0.758 (0.468)	-0.541* (0.320)	-0.026 (0.190)	0.284*** (0.041)	0.289*** (0.041)	0.249*** (0.045)
Reserves in Months Of Imports	-0.126 (0.082)	-0.078 (0.065)	0.040 (0.033)	0.014 (0.010)	0.014 (0.010)	0.005 (0.011)
FDI	-0.075*** (0.028)	-0.047** (0.022)	-0.016 (0.012)	0.006 (0.004)	0.005 (0.004)	0.008* (0.004)
Import Dependence	0.176 (0.265)	0.129 (0.196)	-0.002 (0.083)	0.024 (0.017)	0.024 (0.017)	0.026 (0.018)
Export Dependence	0.063 (0.056)	0.042 (0.044)	0.006 (0.021)	-0.004 (0.007)	-0.003 (0.007)	-0.002 (0.007)
Regime Type	0.033 (0.021)	0.015 (0.016)	0.010 (0.007)	0.005 (0.003)	0.005* (0.003)	0.005 (0.004)
GDP	0.062 (0.072)	0.033 (0.053)	0.010 (0.024)	0.030*** (0.007)	0.032*** (0.007)	0.025*** (0.008)
GDP per Capita	-0.126 (0.116)	-0.101 (0.098)	0.003 (0.034)	0.024 (0.016)	0.022 (0.015)	0.009 (0.017)
Distance	-0.420 (0.376)	-0.121 (0.277)	-0.126 (0.100)	-0.033 (0.021)	-0.040* (0.012)	-0.022 (0.024)
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	850	850	850	850	850	850
R <sup>2</sup>	0.341	0.370	0.128	0.205	0.224	0.040
Weak Instrument F-test	---	---	---	45.857***	50.226***	13.2***
F Statistic	28.809***	32.695***	8.129***	---	---	---

*Note:* Clustered standard errors are in parentheses. Year fixed effects and the constant are included in model, but results omitted to facilitate presentation \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

*Bilateral Currency Swap Agreements (BSA)* showed a statistically significant positive effect on the likelihood that a country will invest in the RMB. *Foreign direct investment (FDI)* was positive across all models but was statistically insignificant. The three economic considerations for RMB adoption, namely, *import dependence*, *export dependence*, and *reserves in months of exports*, were statistically insignificant across all models. This suggests that economic considerations do not drive the demand for the RMB. Among the control variables, *GDP* was statistically significant across all IV models. *Regime* type was statistically significant only for the Official Development Assistance model. *GDP per capita* was not significant in any of the models.

## Discussion

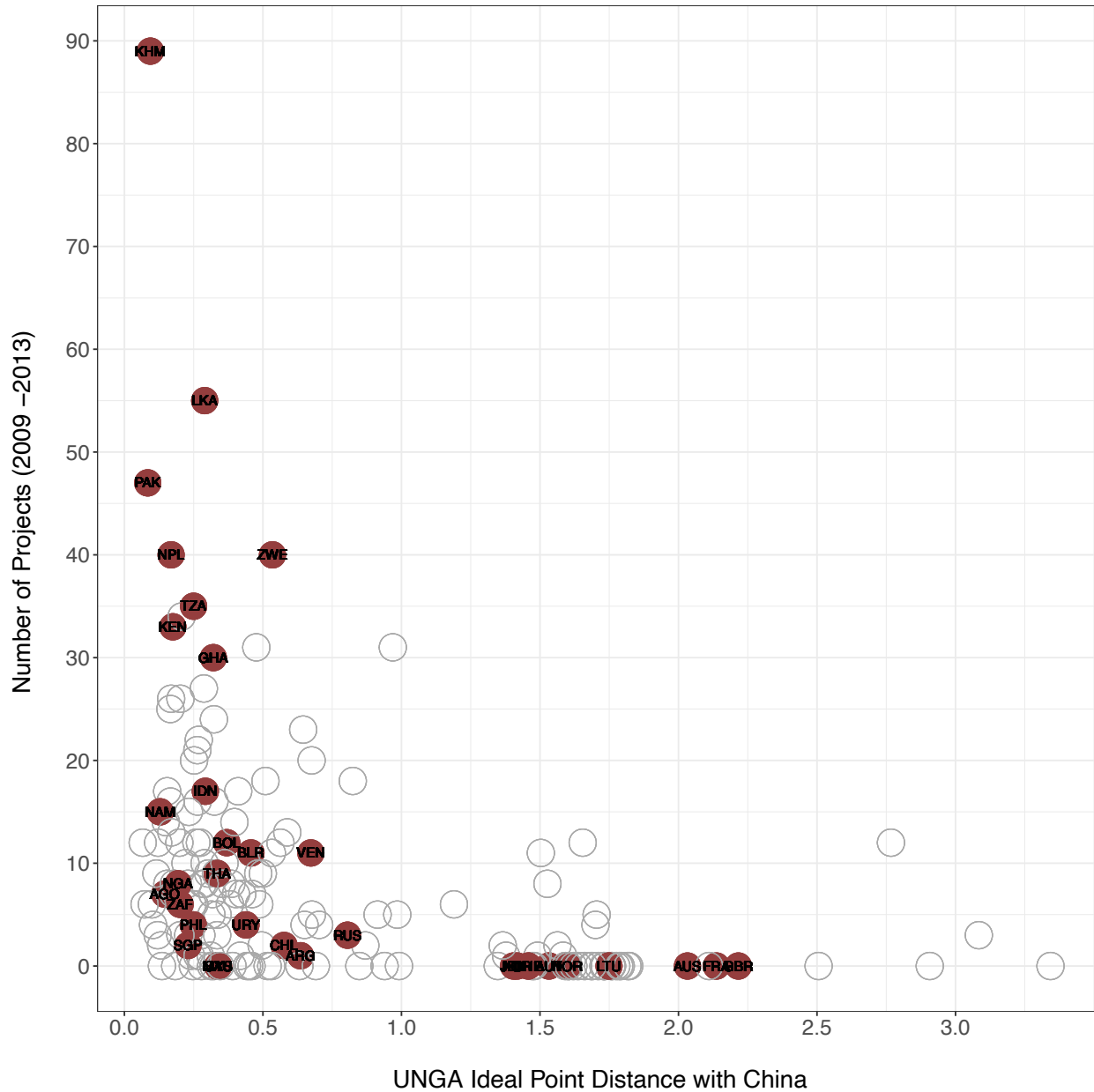
The results from all the models provided strong support for my hypothesis. All else being equal, countries are more likely to diversify into the RMB as the number of Chinese foreign aid projects increases. Furthermore, countries are more likely to diversify into the RMB as their preference for the international order moves closer to China's. This holds true even when accounting for the economic considerations for RMB adoption. However, although these results support Liao and McDowell's (2016) findings—that states with smaller ideal point distances from China are more likely to adopt the RMB as a reserve currency—they also reveal that the decision to invest in the RMB is not simply a symbolic act by states to express their preference for a revised international order.<sup>13</sup> There was a *quid pro quo*. In exchange for diversifying into the RMB, states received Chinese foreign aid.

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<sup>13</sup> Liao and McDowell (2016) attempted to control for Chinese foreign aid but dropped it from their analysis because their results were robust with and without its inclusion. However, this is likely because they operationalized foreign aid as a binary variable: 1 if country *i* in year *t* received any aid and 0 otherwise. Therefore, their measure equated a country like Pakistan, which received 32 projects in 2010, with countries that received only one project.



**Figure 3: UNGA Ideal Point Distance with China & Chinese Aid**



*Note: The figure above depicts a state's average UNGA ideal point distance from China and the total number of Chinese-financed projects they received from 2009 to 2013. Dark red circles indicate countries that hold RMB reserves. Hollow circles are countries that do not.*

As shown in Figure 3, there is a strong correlation between receiving Chinese foreign aid and voting similarly to China in the UN.<sup>14</sup> The vast majority of the initial investors in the RMB not only shared China's preference for a revised international order but were also recipients of

multiple Chinese-financed aid projects. Therefore, it is clear that foreign aid played a crucial role in the RMB's rise to be one of the world's top reserve currencies.

The null findings for the three economic considerations for RMB adoption (*import dependence, export dependence, and reserves in months of exports*) are consistent with what we should expect if China was using foreign aid to buy monetary status. China linked diversifying into the RMB with foreign aid because the economic factors of the currency were insufficient to attract other nations to invest in it. These null findings suggest that the positive and statistically significant effect that foreign aid had on RMB adoption was not because Chinese foreign aid increased trade between countries and China.

A limitation of this analysis is that the costs of Chinese-financed projects vary widely. The available data on the costs of these projects indicate that Other Official Flows projects, on average, cost more than Official Development Assistance projects. The most China committed to an Other Official Flows project was USD 20 billion, USD 19 billion more than the most expensive Official Development Assistance project. Ideally, because the costs of Chinese-financed projects vary so widely, the analysis should use the total amount of money that China committed to spend for financing projects in a country in a given year. However, owing to data limitations, this was not possible. Although using the number of projects financed in a country rather than the amount spent is a clear limitation of the present analysis, the results nonetheless showed that foreign aid had a positive and statistically significant effect on a country investing in the RMB.

## Conclusion

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<sup>14</sup> Mirroring the robust literature on US foreign aid and vote buying in the UN (Kuziemko and Werker 2006; Vreeland and Dreher 2014; Alexander and Rooney 2019).

This research showed that nations can use foreign aid to incentivize other nations to invest in their currency. States can attain monetary status by taking actions that promote the use of their currency. By linking diversifying into its currency with policies that benefit the investing state, a reserve currency issuer can promote its currency even when the economic factors of the currency are insufficient to attract other nations to invest. Using an instrumental variable—an interaction of China’s steel production with a state’s probability of receiving a Chinese-financed project in a given year—I demonstrate how China used foreign aid to encourage other states to increase their RMB reserves and thereby enhance its monetary status. For every project that China financed in a country, the probability that the same country would adopt the RMB as a reserve currency increased. This held true for all types of projects and when accounting for economic and diplomatic conditions that would influence a state’s decision to invest in the RMB.

Foreign aid is an important tool that states have at their disposal and that can influence countries’ monetary policies. Future research should investigate whether other nations have used foreign aid to encourage investment in their currency or thwart the expansion of another nation’s currency. Emerging powers may be the most likely to use foreign aid to enhance their monetary status, since providing foreign aid will be significantly less costly than building up their military to a point where they can credibly offer other state security guarantees.

China’s quest for the RMB to become an international reserve currency was motivated by a myriad of reasons, from status consideration to more concrete geopolitical concerns, and the implications of China’s monetary rise are far reaching. By being an international reserve currency issuer, China can further enhance its international status as a major world power. The inclusion of the RMB in the IMF’s Special Drawing Rights basket codifies China’s monetary status as one of the world’s top reserve currency issuers, signaling to the international

community that the RMB is safe, reliable, and freely usable. Furthermore, increasing the use of the RMB in international transactions has freed China from “having to hold foreign currencies to smooth its balance of payments or aid domestic firms with cross-border obligations” (Eichengreen 2011, 143). Finally, China’s continuing rise in the world’s monetary hierarchy could have serious implications for the US. By settling more of its transactions in RMB, China, the world’s largest trading nation, diversifies away from the USD, thereby diminishing the almost unrivaled dominance of the USD and the so-called exorbitant privileges that such dominance has provided the US for the last half century. While the US’ position at the apex of the monetary status hierarchy is not in jeopardy, the rise of the RMB is carving out a more consequential role for China.

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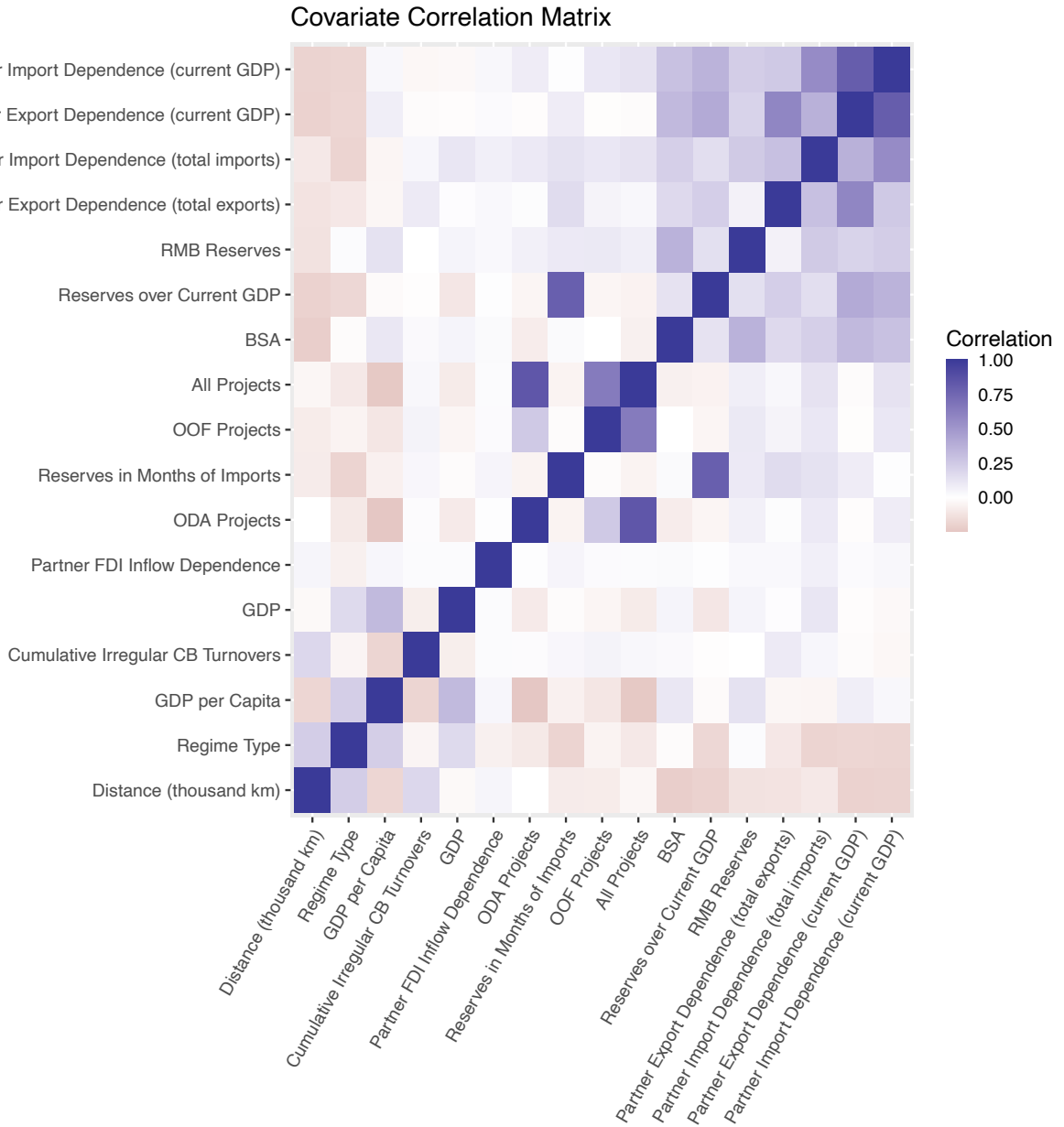
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# Appendix

## Data

**Figure A.1**



**Table A.1 Chinese Aid projects**

	Mean # of Projects	Median # of Projects	Min# of Projects	Max# of Projects	Mean \$ Spent	Min \$ Spent	Max \$ Spent
All Projects	3.318	2	1	32	\$225,646,197	\$176	\$20,356,481,813
ODA-like Projects	2.973	2	1	24	\$72,911,188	\$176	\$1,297,318,408
OOF-like Projects	1.684	1	1	6	\$573,516,851	\$1,718	\$20,356,481,813

*Note: These averages are excluding country-years that a country received no projects.*

**Table A.2: Descriptive Statistics**

Variable	Median	Mean	Min	Max	#NA
UNGA Ideal Point Distance	0.42059	0.74426	0	3.53209	185
BSA	0	0.08324	0	1	0
Reserves in Months of Imports	0.04157	4.37575	5.63509	79.23722	285
FDI	0.01	6.31	763.24	70500.16	394
Import Dependence	0.00148	0.08870	0.10343	0.45768	185
Export Dependence	0	0.02279	0.06382	0.86677	190
Regime Type	-10.000	6	4.008	10	78
GDP (billions)	221	294	0.14	14450.33	35
GDP per Capita (thousands)	3.40	10.81	0.15	81.85	40
Distance (thousand km)	8.13	8.79	0.81	19.3	0

**Table A.3: Project Descriptions**

<b>Country</b>	<b>Flow Class</b>	<b>Project Title</b>	<b>Project Total Commitments</b>
<b>Cambodia</b>	ODA-like	China provides \$49.9 million loan to Cambodia for Phase I Kanhhot Irrigation Development	\$62,774,190
<b>Cambodia</b>	ODA-like	China donates 10,000 USD to Cambodian Red Cross to train young volunteers in the country	\$12,577
<b>Cambodia</b>	ODA-like	China EXIMbank gives US\$53,563,120 as part of a concessional loan for Rehabilitation of Cambodia National Road No.62	\$673,66,234
<b>Cambodia</b>	ODA-like	China commits to 200 million USD of debt relief for Cambodia	\$251,539,618
<b>Cambodia</b>	ODA-like	China donates \$500,000 to WFP for Cambodian food security	\$628,849
<b>Cambodia</b>	ODA-like	EXIMbank concessional loan Lower and Upper Sections of Stung Russey Chrum/Orussei hydropower project	\$518,171,612
<b>Cambodia</b>	ODA-like	China donates \$500000 USD in cash assistance to Cambodia	\$628,849
<b>Cambodia</b>	ODA-like	China provides concessional loan for the Rehabilitation Project of the Cambodia National Road No.61	\$11,941,250
<b>Cambodia</b>	ODA-like	China's Sichuan Province donates agricultural supplies to Cambodia	\$185,768
<b>Cambodia</b>	Vague	EXIMbank finance 246 MW Stung Tatay hydropower project	\$679,156,968
<b>Cambodia</b>	OOF-like	Chinese Language Teaching Volunteers for AY 2010-2011	NA
<b>Sri Lanka</b>	OOF-like	Exim Bank of China commits 200 million USD loan for railway extension project in Sri Lanka (linked to #33407)	\$203,350,673
<b>Sri Lanka</b>	OOF-like	China Development Bank loans 300 million USD to Sri Lanka for Priority Road Project 3' (Phase I)	\$305,026,009
<b>Sri Lanka</b>	ODA-like	Chinese government commits concessional loan of 78.2 million USD to Sri Lanka for railway project	\$79,510,113
<b>Sri Lanka</b>	ODA-like	China Exim Bank loans additional 147 million USD for the Hambantota Port Development Project Phase I	\$149,462,745
<b>Sri Lanka</b>	OOF-like	CMEC signs \$229.5 million water plant construction deal in Sri Lanka	\$233,344,897
<b>Sri Lanka</b>	OOF-like	China donates ping pong table and equipment to Sri Lanka	NA

Note: The table above shows Chinese foreign aid projects that Cambodia received in 2010 and Sri Lanka received in 2013, the years before they invested in RMB.

**Table A.4: RMB Adoption by Country**

<b>Country</b>	<b>Year</b>
Norway	2006
Belarus	2010
Hong Kong	2010
Malaysia	2010
Austria	2011
Cambodia	2011
Chile	2011
Japan	2011
Kenya	2011
Nigeria	2011
Philippines	2011
Russia	2011
Singapore	2011
Thailand	2011
Venezuela	2011
Bolivia	2012
Indonesia	2012
Korea	2012
Macao	2012
Pakistan	2012
Saudi Arabia	2012
Tanzania	2012
Uruguay	2012
Angola	2013
Australia	2013
Lithuania	2013
Namibia	2013
Nepal	2013
South Africa	2013
Taiwan	2013
Argentina	2014
France	2014
Ghana	2014
Sri Lanka	2014
Switzerland	2014
United Kingdom	2014
Zimbabwe	2014

Table A.5: OLS Models

	Dependent Variable: RMB Reserves in Year t+1		
	ODA-Like	OOF-like	All Projects
All Projects	0.015*** (0.004)	---	---
ODA-like	---	0.021*** (0.005)	---
OOF-like	---	---	0.018 (0.012)
UNGA Ideal Point Distance	-0.077*** (0.019)	-0.079*** (0.019)	-0.083*** (0.019)
BSA	0.272*** (0.040)	0.278*** (0.040)	0.262*** (0.041)
Reserves in Months of Imports	0.011 (0.010)	0.012 (0.010)	0.009 (0.010)
FDI	0.004 (0.004)	0.004 (0.004)	0.004 (0.004)
Import Dependence	0.026 (0.016)	0.025 (0.017)	0.026 (0.017)
Export Dependence	-0.001 (0.007)	-0.002 (0.007)	0.001 (0.007)
Regime Type	0.006*** (0.002)	0.006*** (0.002)	0.006*** (0.002)
Year Fixed Effects	Yes	Yes	Yes
Observations	850	850	850
R <sup>2</sup>	0.231	0.235	0.219
Residual Std. Error	0.284	0.283	0.286
F Statistic	16.677***	17.043***	15.615***

*Note:* Clustered standard errors are in parentheses. Year fixed effects and the constant are included in model, but results omitted to facilitate presentation.

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01