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China in Africa:
an Alternative to International Financial Institutions?

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Abstract

This paper analyzes the link between IMF programs in Africa and the increasing Chinese presence in the continent. We find a significant and important substitution effect: countries that have access to IMF Funds have less interactions with China. In particular, participation in IMF programs reduces relations with China, measured with reciprocal diplomatic visits, by at least one standard deviation per year, i.e. half a visit at the presidential level. This translates into loans and aid flows from China that are smaller by at least 1.2 millions USD.

Our main contribution is twofold. On the one hand we propose a new proxy for Chinese aid and loans, i.e. reciprocal diplomatic visits between China and African countries. We, thus, compile an original dataset that contains both information on diplomatic visits, as well as some estimates of aid flows, and IMF activity in the continent. On the other hand, we innovate in the methodology, as we both try to disentangle demand and supply side determinants of Fund's programs using a bivariate probit model and we propose two original instruments for participation in IMF programs: the level of checks and balances and a dummy indicating whether the executive controls all relevant houses in the Parliament.

On the theoretical side, we propose a model of credit substitution at the macroeconomic level. Its implications are in line both with the empirical findings, and with the literature assessing the predominant role of political and institutional variables in IMF decisions.

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1. Introduction

Africa is the promised land for China, the Far West free to be explored. Private and public investors bring money and workers, and take away the many resources that hide in the African soil. The numbers, when they are available or estimable, are huge: infrastructure projects, for instance, have grown from around US$0.5 billions per year in the early 2000s to at least US$7 billions in 2006. In the same years trade has increased by 700%, reaching US$73 billions in 2007.

The comparison with the gold miners, however, risks to oversimplify the issue. China, in fact, has successfully completed pledges for debt relief for highly indebted African countries, and is contributing to the flow of aid and grants that daily enters the continent.

The most recent and most symbolic example of the Chinese effort to help building African institutions, at least formally, is the construction of the new Conference Center of the African Union, in Addis Ababa.[1] Works started in January 2009, and will be completed, with Chinese efficiency (Chinese workers cooperate with local ones) by December 2011. The cost of the work, which has already reached over US$130 millions, will be entirely borne by Chinese government. The "gift", as both Chinese and African officers call it,[2] can be viewed as the evolution of the so-called "stadium diplomacy".[3] Chinese started to build brand new stadiums and conference halls around Africa, to leave a mark on the territory. The AU Conference Center, however, is much more than a place for entertainment: China is building the seat of the African interstate organization. Cooperation among African countries has always been invoked as the only solution Africa has to exit underdevelopment, and China is ensuring itself a place in the happy handshaking pictures.

The usual argument that China does not care about democracy and stability in African countries as long as it receives natural resources, then, seems to have become obsolete and weak. Western countries are adapting to the Chinese style. Germany, for instance, will finance, again in Addis Ababa, the new building of the Peace and Security Council of the African Union Commission. The project started in 2008, but constructions have not begun yet, and will by no means end before the Chinese Conference is completed.[4]

Chinese role in Africa is becoming more and more complex and diversified. China is a trading partner,

1 http://www.monocle.com/sections/affairs/Magazine-Articles/Power-Struggle/
2 http://www.goodnewsafrica.net/2010/02/01/new-african-union-conference-center-takes-shape-in-ethiopian-capital/
3 http://angola.suite101.com/article.cfm/africa_cup_of_nations_can_china_link
4 http://www.gtz.de/en/weltweit/afrika/aethiopien/30563.htm

a lender, an investor and a generous aid donor. Chinese presence in Africa is not a new phenomenon, but its increase at all levels is pretty recent, as is research on the issue. The data available are scarce and not very reliable, and a lot of work has to be done in this direction to answer the very different questions that Chinese penetration in Africa raises.

In this work we focus on the challenges that China poses to International Financial Institutions (henceforth IFIs) that have since now operated, almost in a monopolistic situation, on the African Continent. To our knowledge, this is the first attempt to assess empirically whether Chinese funds represent a less onerous alternative, in terms of conditions attached to the loans, to IMF programs.

To overcome the lack of data on Chinese aid or loans, we construct an original dataset of reciprocal diplomatic relations between African countries and China, based on information by the Chinese Ministry of Foreign Affairs. We distinguish between presidential and total visits.

To assess the impact of IMF programs on sino-african diplomatic relations we use two different strategies. We are interested in the determinants of IMF programs in Low Income Countries (henceforth LICs), and we are the first to focus on IMF in Africa, and we estimate demand and supply propensities for IMF funds via a bivariate probit. We use these estimates to evaluate the impact of credit crunch by the Fund on African relations with China. In the second step we exploit a variety of techniques ranging from tobit to fitted values as instruments, and all give concordant results. Starting a program with the IMF reduces the interactions a country has with China by one standard deviation, i.e. per year countries exchange half a presidential visit less with China. When we consider total visits, instead, we find that country having programs with the IMF exchange one visit less per year.

Endogeneity might still be an issue, though, as causality might go in the other direction. Thus, we instrument participation in IMF programs with two institutional variables that we argue are strong and exogenous instruments. The level of checks and balances over the executive and a dummy measuring whether the executive controls all relevant houses in the parliament are found to be important determinants of IMF decisions (a finding confirmed in the bivariate probit analysis). In particular IMF supply decisions appear to be driven mostly by political and institutional variables. The particular economic situation of African countries, and the programs specifically designed to address their long-run and structural needs make economic variables traditionally used in the literature lose their explanatory power. On the Chinese side, instead, political variables are found to be insignificant, which is in line with the Chinese non-interference policy. Thus, controlling for the regime in power in a

country, we think that we can safely rely on the exogeneity of our instruments with respect to Chinese aid and lending decisions.

IV results support the findings obtained with our first and more innovative strategy, and suggest that it is an insightful tool for further research. Furthermore, we exploit IV results to obtain hints on the magnitude of the substitution effect at work. We find that one additional diplomatic visit at the presidential level is be able to mobilize 3 millions USD. Thus, some back of the envelope calculations suggest that a refusal by the IMF leads African countries to borrow (or search in the form of aid) between 1.2 and 2 millions USD from China.

The paper is organized as follows.

Chapter 2 provides the stylized facts. We present data regarding Chinese presence in Africa to offer a complete and updated picture of the bond between Beijing and the African continent, which is growing stronger and stronger. Then, we discuss and compare the IMF presence in the territory to have a first overlook of the issue. The Fund appears to have retired from Africa in the early years 2000s. Lately, however, programs in the continent have increased in number, maybe in response to the Chinese "invasion".

Chapter 3 surveys the relevant literature, in terms of factual analysis, empirical methodology useful for our purposes, data availability, and theoretical models applicable to our analysis. The order reflects also the decreasing amount of work at our disposal: unfortunately very few data are reliable, and this discourages research on the issue, leaving more room for descriptive analysis. Similarly, to our knowledge there is no theory that tries to encompass the various actors and forces at play. Thus, in Chapter 4 we design a simple model of macro-credit substitution as an attempt to derive insights on the different roles of the IFIs and China in Africa.

Data collection, methodology and empirical results, that we already introduced briefly, are then discussed extensively in chapters 5, 6 and 7 respectively. Policy implications are finally drawn in Chapter 8. Chinese funds are indeed substitutes for IMF programs. However, determinants of Chinese decisions parallel those for IMF programs, which leaves room for future cooperation. International financial institutions should provide the appropriate systems for this cooperation, and this is probably the most relevant challenge of the new millennium. IFIs and China could avoid competition in targeting their respective borrowing countries by complying to a pattern of specialization which is already emerging. In particular, China addresses the needs of the more dynamic African countries, while the

Fund should take care of the poorest among the poor.

Finally, Chapter 9 summarizes our conclusions.

2. China and the IMF in Africa. Some Facts.

Recently China has grown to be one of Africa's most relevant partners. This doesn't mean, however, that it wasn't already active as an aid donor in Africa.[5] The novelty of the past decade is the size of the flows from China to Africa, and the interest that these flows have aroused in the West.

Although it is true that in general South-South cooperation has increased, Chinese involvement in Africa outnumbers by far the presence of other actors, such as India or the Arab world.[6]

Chinese presence in the African continent has surged, in terms of money flows as well as in terms of number of projects involving not only Chinese companies but also Chinese workers. Furthermore, the contacts are not confined only to the private sector: on the contrary, they involve the explicit efforts of governments on both sides, via renovated diplomatic relations as well as new institutional arrangements, like the one that established the FOCAC (Forum for China-Africa Cooperation) in 2000.

The Chinese government's mobilization for the country's expansion in Africa has of course political and strategical reasons, but it is also motivated by the particular system that operates in China. Chinese FDI shall receive an authorization by the government prior to any activity, and most enterprises that engage in FDI are stately owned: this allows Chinese agents to have access to more capital and for longer periods, and link Chinese FDI to Chinese foreign policy.[7]

To sum up, if we want to understand the links between China and African countries, we need to focus on trade, FDI and aid flows on the one hand, and on diplomacy on the other hand.

As it concerns aid, China started programs to help African countries free themselves from their international debt. The first round, announced at the first FOCAC meeting in 2000 has been completed, and a second one replaced it in 2006. These two pledge waves involved a total of $2.6 billions and 33 African countries.[8]

At the same time, however, China has been a generous lender, and sometimes a providential help, for Africa (as it has been for the rest of the world, US included), contributing to increase the external exposure of African countries. Thus, China is able to benefit twice from the loans, both in the concession phase and in the cancellation phase.[9]

5 See for instance Braeutigam (2010).
6 Foster, Butterfield, Chen, Pushak (2009).
7 Kaplinsky, McCormick, Morris (2006).
8 Wang (2007).
9 Pehnelt (2007).

There are no official data on Chinese aid, and given the multiplicity of channel through which China provides assistance to African countries these flows are difficult to estimate. Wang (2007) provides reliable estimates of US$1.0–1.5 billion annually for 2004–05.[10] A database of projects in infrastructure financed by China either through the Exim-Bank or by unspecified governmental emanation shows that Chinese financing commitments rose from around US$0.5 billions per year in the early 2000s to at least US$7 billions in 2006.[11]

Chinese role as an alternative resort for African countries, however, has sometimes undermined the coordinated efforts for democratization made by the international community. In 2006, for instance, China provided Angola with a soft loan of US$2 billions that would enable "the government to resist pressure from the International Monetary Fund to improve the transparency of its oil sector and to tackle corruption".[12] Another issue about Chinese foreign aid, which is growing at a high speed, is the fact that it is mostly tied, meaning that: "Equipments, materials, technology or services needed for the projects should be procured from China ahead of other countries. In principle, no less than 50% of the procurements shall come from China".[13] It is evident how this condition is likely to impede the development of local industries, condemning African countries to depend for the implementation of developmental projects on foreign technology and, often, labor.

Unfortunately, China's influence on Africa takes not only forms that are implicitly against the implementation of widely recognized (at least by the Western countries who established them) democracy and freedom standards, but also forms that are in explicit violation of the "codes of behavior" of the international community. China has, in fact, sold weapons to the troubled countries of Sudan, Zimbabwe, Liberia and Sierra Leone. Moreover, China managed, together with Russia, to veto on a UN Security Council Resolution that was aimed at imposing sanctions on Zimbabwe for gaining re-election through violence and intimidation.

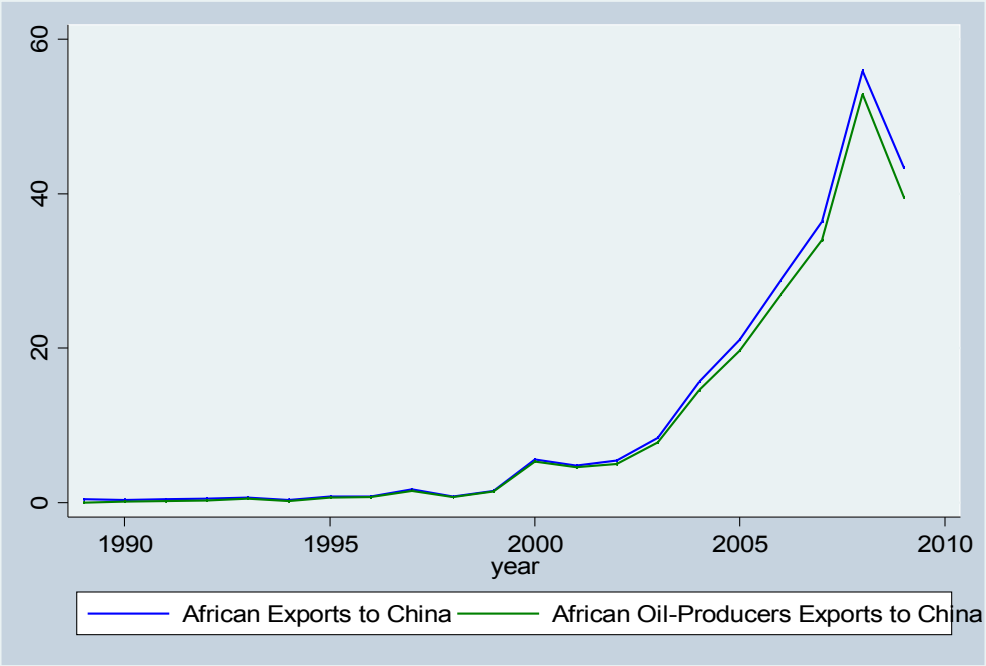
An ultimate, important, aspect of Chinese relationships with Africa needs to be underlined: one of the most important partners of China is South Africa, which is ranked as a free (score 2 by Freedom House), democratic country. This suggests that China does not follow mere political convenience, but takes into account also its economic interests when choosing its partners, at least in some of its

10 For an extensive discussion of Chinese aid institutions and channels see for instance Bräutigam (2010) or Chaponnier in Van Dijk (2010).
11 Foster, Butterfield, Chen, Pushak (2009).
12 Wild (2006). http://www.opendemocracy.net/globalization-institutions_government/china_africa_g8_3725.jsp
13 Source: EximBank. http://english.eximbank.gov.cn/business/government.jsp

decisions. Thus, a more careful analysis needs to be done, in order not to misinterpret reality.

Indeed, China's most important trade partners in Africa are Sudan, Angola, and South Africa, followed by Zambia, DRC, Equatorial Guinea, Republic of Congo, Nigeria, Gabon.[14] It is evident from this list that the main exporters to China are all resources-rich countries, and in particular oil or mineral producers. Much less can be said on the correlation between the intensity of a country's relation with China and the level of democracy (as broad as this definition can be) in the said country.[15]

Figure 1. Exports from All African versus African Oil-Producing Countries towards China



Source: UN-Comtrade. Data are in billions of current US dollars.

Trade between China and Africa has surged in the first decade of the third millennium. However, Figures 1 and 2 show that, although trade, and in particular exports of natural resources towards China has increased enormously, it is still a small part of the pie, which continues to be dominated by the bilateral relations between Western and African countries. The reasons are again various. Path dependance plays a great role, with colonial and established business ties maintaining their relevance. Nigeria and Angola, for instance, continue to export, their oil mainly towards the US. This explains why the figures of crude exports towards China are still small compared to the world exports. China is

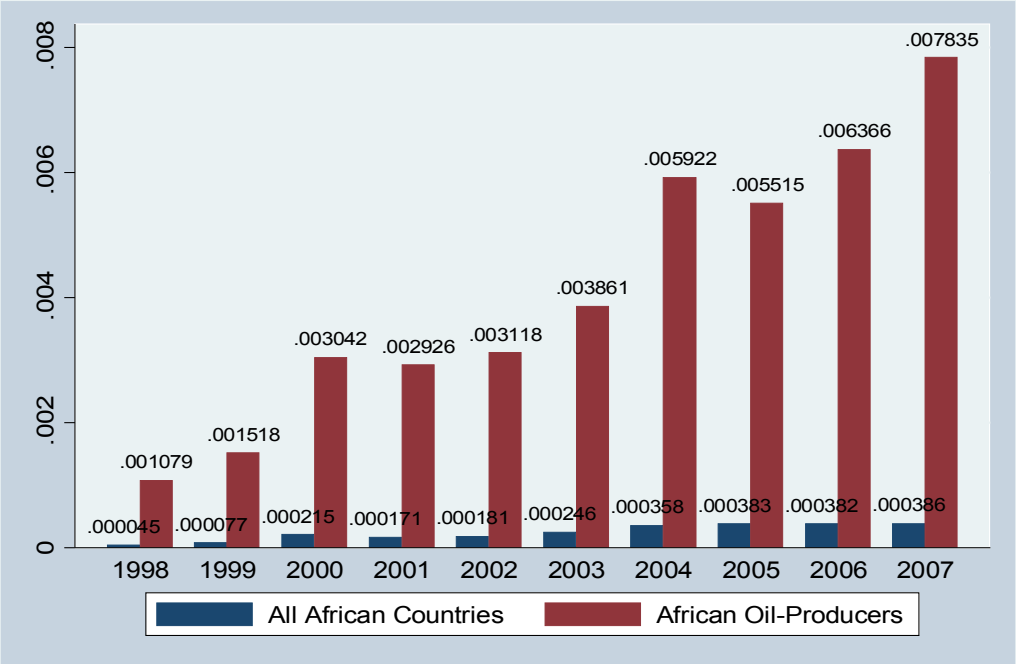
14 See Broadman (2006) p. 13; and Kaplinsky, McCormick, Morris (2006).
15 An interesting table on the issue can be find in Pehnelt (2007).

forced to invest in oil explorations in smaller countries, which had till now remained at the margin, like Gabon and Equatorial Guinea.

Figure 1 shows the similar trend in exports of African countries towards China and of oil producer African countries towards China (values are in billions of current US dollars).

To appreciate the impact of natural resources exports (here we only have oil producers but similar patterns are identifiable for mineral exporters), in Figure 2 we display the evolution of the ratio of exports to China on total exports for both groups for the years 2000s. It is evident that these ratios are still very small, but oil producer countries' exports towards China are growing at a faster rate than other African country.

Figure 2. Exports to China on Total Exports.



Source: UN-Comtrade. Columns represent ratios.

Total trade between China and Africa has also increased a lot, from US$10.8 billions in 2001 to US$73 billions in 2007.[16] Exports, however, are more interesting for our analysis. First of all, export values allow us to appreciate China's resource thirst. In addition, exports, and natural resource exports in particular, may represent the counterpart of asset-backed loans granted by China to African countries. Imports values, on the other hand, may be imprecise because of the materials and machines that are

16 http://www.cfr.org/publication/9557/china_africa_and_oil.html#p3

donated by China to African countries.

2.1 China in Africa. Some Examples of Partnership.

In this section we present some relevant case-studies of African countries that have particular relations with China and that present interesting internal characteristics.

2.1.1 Sudan

Its President and Prime Minister, Omar Hassan Ahmed al-Bashir, a military, has been in power since 1989, interrupted only by episodes of rebellions and elections that cannot be defined as fair.
Rebellions and civil wars have been a constant internal problem in Sudan, with the southern regions claiming autonomy and a less Islamic regime. In this setting, oil revenues are a major source of funds for the war going on in the south of the country.
Sudan is also one of the main partners, if not the favorite, of China, both in terms of Sudanese exports (oil) towards China and of Chinese FDI.

Chinese oil companies hold the most significant stakes in its two main oil consortia, and China has given a major contribution in the construction of the infrastructures necessary for the oil extraction.[17] China is the major trading partner of Sudan, with big shares also in the construction industry, while Sudan is China's third largest trade partner in Africa. The volume of trade between the two countries in 2007 reached US$5.6 billions, and in the first nine months of 2008 it had already increased to US$6.5 billions, with oil, machinery, and equipments contributing for the most part.[18]
Political relations between the two countries are well-established and very good. In November 2008, China extended a grant of US$3 millions to be spent in a program to strengthen north-south unity, whatever this might mean. As mentioned above, the Southern part of Sudan has always had claims of independence, repeatedly culminated in insurrections until the last one in 1998.
China not only is active in the most traditional sectors, mentioned above, but it is also strengthening its presence by opening branches of Chinese banks and by revitalizing the agricultural sector, with

17 See Arms, oil, and Darfur. http://hei.unige.ch/sas/files/portal/spotlight/sudan/Sudan_pdf/SIB%207%20Arms.pdf
18 See Sudan Tribune. http://www.sudantribune.com/spip.php?page=imprimable&id_article=29447

transfers of technologies and innovations.[19] This is of course strategic for a huge country like China, which needs to nourish a humongous population, despite all the efforts put into birth control.

Another important issue to be considered in analyzing China's influence on the political process in Sudan is the surprising, at least at first sight, modification of China's own stance on UN and AU intervention in the civil conflict in Darfur, Sudan. Despite strong rhetoric about non-interference and its original support of Khartoum's rejection of UN intervention, the Chinese leadership was providential in persuading Khartoum to accept a joint UN-AU task-force in late 2007. It is to be noticed that the UN intervention did not imply any financial sanction, being a mere pacification military mission. It could well be the case that Chinese authority eventually understood the importance of having a commercial partner finally at peace, meaning more secure investments and public spending devoted to infrastructures instead of defense. Moreover, this positive stance could be very well bartered with a strong opposition to sanctions and embargoes that would cause economic losses and threaten the Chinese leadership in Sudanese oil exports.
The Darfur issue has been a controversial discussion theme with respect to Chinese position all over the past two years, with the public opinion willing to boycott the Beijing Olympics also for an alleged causality between Chinese presence and oil extraction in Sudan and the Darfur tragedy. As we all know, however, the Olympics took place without major diplomacy incidents. The causality link between Chinese activities in Sudan and the Darfur tragedy has been refused by international officers, and an official effort toward the pacification of the country has to be acknowledged to China. If unofficially China is benefiting from the troubled situation of Sudan, or if it is selling weapons, or just omitting to use its power to convince the Sudanese government to mediate and find a solution, it is not provable, just as it is impossible to prove how much Western governments are involved in the same activities.

2.1.2 Angola

The country is the second-largest petroleum and diamond producer in sub-Saharan Africa, which, as it is often the case in Africa, does not imply that it is also among the richest countries in the continent in terms of living standards. According to the IMF, more than US$4 billions in oil receipts have disappeared from Angola's treasury in the 2000s. Moreover, guerrilla is still going on in the Northern

19 Ibidem.

part of the country, where most of the oil comes from, despite a peace deal signed in August 2006.
The current President of Angola, Josè Eduardo Dos Santos, has been in charge since 1979. A former leader of the independent movement, Dos Santos has been lately criticized for having won unfair elections, and for the lack of transparency in the management of oil revenues and international funds. The same problem arose with management of Chinese capitals, as we will see.

Trade, aid and FDI, are all linked and difficult to distinguish in the case of Angola, since they all rotate around the oil industry. In particular, Angola is the first oil source for China. However, since imports from China have increased but not at the same pace (Angolan government officials have declared that they are diversifying partners on purpose, in order not to depend too much on China), Angola has accumulated a huge balance of trade surplus, which translates in huge financial flows. In particular, Chinese banks and funds are providing loans for post-war reconstruction and projects aimed at the development of the country, that have been assessed to have brought about a reduction in poverty. Transparency issues on the management of these capitals have been raised in the West as well as in the country itself, leading also to penal trials.
The projects financed by Chinese capital, mostly by the Chinese International Fund Ltd and by the China Construction Bank and China's EximBank (Exim stands for Export-Import), are implemented through the cooperation of selected Chinese enterprises and local actors (there exists, in fact, tight local requirements) facilitating a knowledge transfer. Chinese FDI are of course important in the extractive sector (oil and diamonds), but there has been the effort to widen the cooperation.
As for the political relations, they are good and friendly, as the huge number of official mutual visits testifies. Angola benefits from the non-interference "paradigm" of Chinese foreign policy. On the other hand, Angola claims to proudly maintain its independence also in politics, being careful not to be perceived as a client of China.[20]

2.1.3 Nigeria

A very important oil producer, Nigeria is a recognized partner of all Western countries, and continues to receive money from the IMF and the World Bank even after the fraudulent elections in 2007 that cost it

20 Campos and Vines (2007). The paper is based also on interviews with people in Luanda, which makes it a very interesting reading in order to understand how China's presence is perceived from African people under the government's level.

a downward trend arrow from Freedom House (now it is classified as partly free, with a score of 4). The elections saw the victory of Umaru Yar'Adua, of the People's Democratic Party, to which belong also the the Senate President and the Speaker of the House of Representatives.

Some questions regarding Nigerian recent history naturally arise: why did the West blindly support the country's transition towards democracy despite the repeated evidence of corruption and elections flaw? Is oil responsible for this strong bond?

Nigeria re-achieved democracy in 1999 when it elected Olusegun Obasanjo, former military head of state, as the new President, after over thirty years of military rule. However, even the elections which brought Obasanjo to power in 1999 and again in 2003 were condemned as not free and unfair. The new President, nonetheless, declared his willingness to tackle government corruption and to hasten development, despite being himself accused of corruption.

Ethnic violence in the oil producing Niger Delta region and inadequate infrastructures are some of the current issues in the country, which also make FDI not secure, and hinder development and further international trade.

It is, thus, difficult to evaluate whether the process of democratization in the country was successful, and to what extent.

Nigeria has become China's second biggest trading partner, and in particular bilateral trade growth has continued also under President Obasanjo, who had very strong ties with the US and the UK. Nowadays, Nigeria tries to balance the over-engagement of the West with the non-interference strategy of China.[21] China, on its side, is trying to build strategic relationships with Nigeria, as the many major level reciprocal diplomatic visits testify.

To obtain a share of the Nigerian resources that traditionally went to the West, the Beijing government encourages private FDI, which involves development programs and Corporate Social Responsibility at least in the most troubled areas, like the Niger Delta.[22] Indeed, normalizing the Niger Delta area could be useful also for Chinese business, for which criminality and guerrilla, which are often entangled in these unstable regions, are a problem. Recently, workers in the oil industry, both Western and Chinese, were kidnapped by armed people looking for a ransom.

Government's efforts seem to be paying off: Chinese FDI in Nigeria is growing. "In March 2008, Nigeria was offered up to US$50 billion by Sinosure, China's export credit guarantee agency, to assist

21 Utomi (2008).
22 Ibidem.

in the funding of projects in Nigeria over the next three years. This is the largest overseas commitment by China so far. It is intended to encourage a wide range of Chinese private investment in Nigeria, particularly for the improvement of Nigeria's poor infrastructure, for example, in the railway and power sectors. But essentially, these facilities are meant to serve as an exchange in return for licenses in oil exploration blocks (cf. Financial Times, 2 April 2008). In fact, China is part of a US$4 billion deal for drilling licenses in Nigeria which also includes grants for economic and technical cooperation in anti-malaria drugs and rice production."[23]

2.1.4 Gabon

It is a small country whose unique source of revenues is oil. It has an income per capita which is four times the African average. The high income inequality, however, forces a great part of the population in extreme poverty.

Environmental and political issues concerning Gabon have been reported by the international community, the latter due to the permanence in office of its Chief of State, Omar Bongo Ondimba, since 1967, but the country is too small to be considered as a relevant topic in any foreign policy debate among Western countries. For instance, "the EU maintains that its concern over China's rapid market entry is primarily due to its concerns for Gabon's environment. It is not, they claim, due to a concern over a loss of market share since Gabon is not considered a large strategic market. Nevertheless, EU trade with Gabon is not inconsiderable; six of Gabon's top ten import origins are from the EU. [...] But it does appear that a loss of market share to China would set a dangerous precedent, particularly given France's tenuous hold on the rest of Francophone Africa. Despite asserting, at least publicly, that "there is enough to go around", it seems that there is an undercurrent of real concern that French influence is being eroded in the country".[24] Indeed, being Gabon a former French colony, the French influence is still very important, and France is the country that has mostly expressed its concerns about Chinese presence. Actually, France has been active in this sense not only with reference to Gabon, but also to other countries (see for instance President Sarkozy's various speeches on the topic during his visit in Sub-Saharan Africa in 2007, when, among the others, he stressed the importance of hindering that aid becomes a prize to bad governance). At the same time, Gabon has proved to be aware of the importance of diversification in foreign relations, which might mitigate French worries.

23 Kohnert (2008).
24 Source: China's engagement of Africa. http://www.ccs.org.za/downloads/RF_Paper_Final.pdf

Concerns for environmental practices regard the forestry sector, where the Chinese are massively penetrating, which has been known for its opaqueness. However, it is to be noted that the Western actors active in the sector in the past were accused of the same abuses. Moreover, Chinese entrepreneurs have started applying principles of what in the West would be defined as CSR: EximBank, for example released an environmental policy paper that will apply to the projects financed by the bank.[25]

To sum up, China has a well-defined plan, which is probably missing among Western countries, to invest in Gabon to gain a primary role in the country's oil exports, although Gabon's limited size constitutes a barrier to Chinese opportunities of expanding its own exports in exchange.[26]

2.1.5 Tanzania

Being poor because of the socialist regime that has ruled the country since independence in 1961, Tanzania has not been an interesting partner for the West, despite the abundance of natural resources like gold and natural gas. China, with which Tanzania has always been aligned since Cold War, and which it has always supported regarding the Taiwan issue, is filling in this gap, with a considerable effort also of small private entrepreneurs, who, however, have to fight against the problems of a highly underdeveloped country, like the lack of infrastructures. Moreover, Chinese government considers the country strategic also as a transport gateway toward the rest of the eastern part of Sub-Saharan Africa, as well as a transition to access the European market.[27]

A further interesting aspect of the relationship between China and Tanzania, is the encounter of the ruling parties of the two countries, the CPC and the Revolutionary Party of Tanzania. The two nations have also exchanged promises of mutual counseling in the field of administration.[28]

Tanzania provides an example of the new directives in Chinese foreign policy with respect to democracy issues. Official declarations of representatives of the Chinese government imply an active involvement in fighting corruption and improving administrative supervision, on the basis of Chinese achievements with respect to both economic and social development and anti-corruption efforts[29] (the latter have, however, been contested by the international community).

25 Ibidem.
26 OECD (2008).
27 Blume (2008). http://www.taz.de/1/zukunft/wirtschaft/artikel/1/chinas-mckinsey-in-afrika/
28 Source: FOCAC. http://www.focac.org/eng/zxxx/t223210.htm
29 Source: http://www.china.org.cn/english/international/185966.htm

2.1.6 Rwanda

After years of civil war and genocides, the country has gone far in the process of democratization, with a very liberal Constitution, even though the oppositions were kept away from true political debate. China has become one of its major trade partners following its former motherland, Belgium, one of the main actors in the process of rebuilding the country.

Nowadays, Rwanda presents itself as a country that doesn't need development aid help anymore, but FDI and entrepreneurs willing to work for development. This is an approach promoted by African governments willing to emancipate themselves from the paternalistic, and sometimes invading presence of Western countries. The former colonialists are, indeed, seen as trying to extend the influence in a subtle way, by prolonging the dependence of the ex-colonies. In addition, Western private entrepreneurs behave just like their governments, and do not notice the many investment opportunities that flourish in the country.

For instance, despite the description appeared in the magazine Fortune depicting Rwanda as a country which is not so much open towards other governments but rather toward the world of entrepreneurs, it is mostly Chinese private investors, who gradually exploit this trend.[30]

2.2 The IMF in Africa

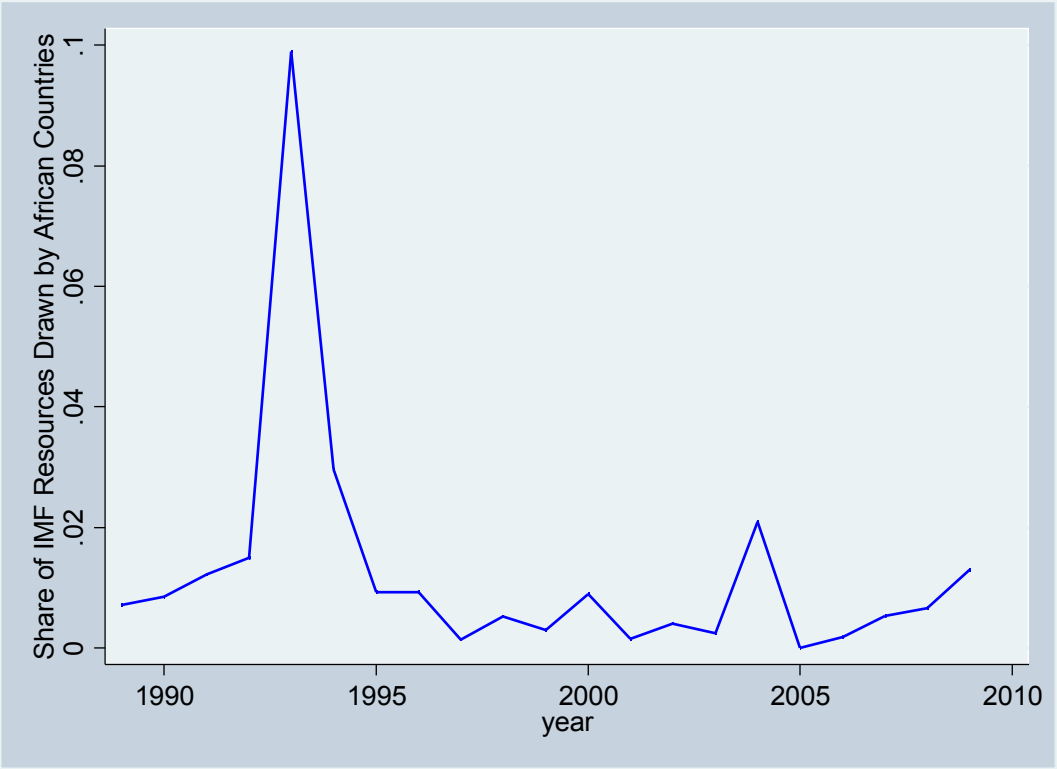
Figure 3 shows the ratio of IMF disbursements to African countries over total disbursements per year. What is evident is that there is no evident trend. Apparently, the IMF has been more reluctant to lend to African countries in the late 1990s, and the number of African projects started to raise again only recently. It might not be by chance that the decline in African programs starts exactly in 1997, when the IMF adopted new guidelines regarding governance issues.[31]

Note that the numbers in the graph refer to the amounts drawn by countries, and not the amounts previously agreed during the negotiations. Thus, conditionality, i.e. the fact that IMF programs come with economic and political conditions attached, enters the game via two different mechanisms: first of all it reduces the programs that are started ex novo, and successively it can cause programs to be suspended or even canceled because the country fails to meet the intermediate conditions set by the

30 Blume (2008). http://www.taz.de/1/zukunft/wirtschaft/artikel/1/chinas-mckinsey-in-afrika/
31 http://www.imf.org/external/np/sec/nb/1997/nb9715.htm

IMF.

Figure 3. IMF Disbursements to African Countries over Total.



Source: IMF Disbursements & Repayments Data and IMF Country Reports.

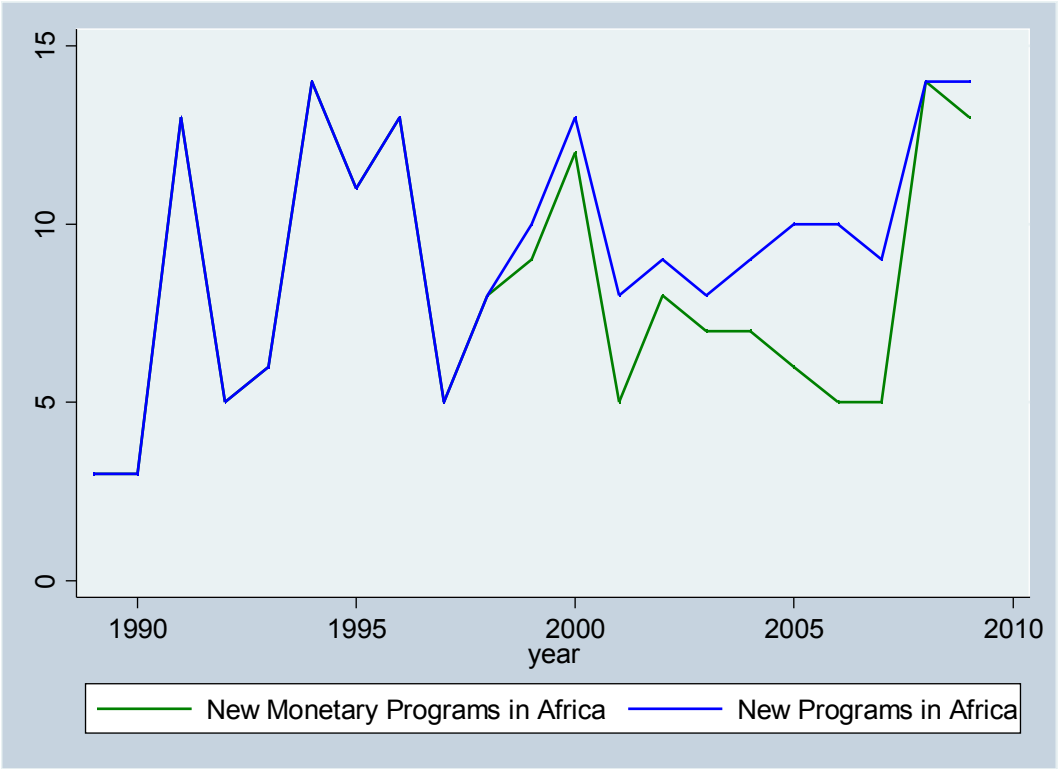
Figure 4 adds to the picture by displaying the total number of new programs agreed upon every year and the number of new monetary programs. The monetary programs exclude Policy-Support Instruments and Staff-Monitored Programs, which are two relatively new tools in the hands of the IMF. Countries on PSI or SMP do not receive any funding; they, instead, get counseling and help in implementing reforms or improving the data management of the country. These two innovative programs came into being only after 1999.

Once again, we see that at the beginning of the past decade the IMF was more reluctant to start programs in African countries, and more so to lend money. In the recent years, however, this trend has been inverted. The global crisis is of course a major cause for the increase in the Fund's involvement in Africa. Someone suggests, though, that this could also be a reaction to the Chinese attempt to invade what once was considered Western territory.

Conditionality, however, is actually very controversial when speaking of the IMF. Many studies have

found inconsistencies in its application, both in the number of conditions applied and in the enforcement of those conditions.[32] In particular, it must be remembered that the IMF as an institution works through its various country offices, and not as a unique body. This can lead to different ways of applying the same guidelines.[33]

Figure 4. Number of IMF programs agreed in Africa per Year.



Source: IMF Country Reports.

Furthermore, it is often difficult to state conditions that are relevant for a country's democratization process. Thus, Deborah Bräutigam can state that "neither the IMF, nor the World Bank (nor the Chinese) apply conditionality over democracy or human rights. Many bilateral donors do apply such conditions, but sometimes inconsistently or without well-defined, objective triggers or standards". In the same article she explains that the "World Bank has allocated aid to the 78 low income countries eligible for its concessional loans in part on the basis of their rank on the Country Policy and Institutional Assessment (CPIA), a tool with 16 broad indicators (World Bank 2008). These include "Property Rights and Rulebased Governance" as well as "Transparency, Accountability, and Corruption

32 Steinwand, Stone (2007).
33 See Bird (2007) for a review of the issue.

in the Public Sector." The CPIA indicators include some protection of human rights (particularly equal rights for women) but there is no reference to democracy, elections, or general political freedoms, in keeping with the World Bank's Articles of Agreement, which ban it from interfering in a country's political affairs or making decisions based on the political character of the member country. The International Monetary Fund has similar restrictions".[34]

One could object to our analysis by arguing that the IMF addresses balance of payments sustainability issues, and it is not a source of aid in the traditional definition. It is the IMF itself, however, that distinguishes between classic programs and those directed towards low-income countries, that are outside the General Resources Account (GRA), of which the most famous is the Poverty Reduction and Growth Facility.[35]
In our dataset we encounter the following programs:

- Extended Credit Facility: 114. "The Extended Credit Facility (ECF) provides financial assistance to countries with protracted balance of payments problems. The ECF succeeds the Poverty Reduction and Growth Facility (PRGF) as the Fund's main tool for providing medium-term support LICs, with higher levels of access, more concessional financing terms, more flexible program design features, as well as streamlined and more focused conditionality".[36] In addition, 23 Structural Adjustment facilities have been completed in Africa in the period of interest. The Structural Adjustment Facility, and the Enhanced Structural Adjustment Facility were substituted by the PRGF.

- Stand-by Arrangement: 36. "Under its structure, financing is provided in support of adjustment to a balance of payments need and disbursed in tranches based on conditions spelled out in the program".[37]

- Emergency Assistance: 18 in post-conflict cases and 1 for natural disasters. "This assistance is aimed at meeting immediate foreign exchange financing needs arising from, e.g., shortfalls in export earnings and/or increased imports, and avoiding a serious depletion of external reserves in the case of natural disasters. In 1995, the IMF's policy on emergency assistance was expanded to cover countries in post-conflict situations. This assistance is limited to circumstances where a member with an urgent balance

34 Bräutigam (2010).
35 See IMF (2004) and IMF (2009) for a review of the issue.
36 IMF Factsheets.
37 Ibidem.

of payments need is unable to develop and implement a comprehensive economic program because its capacity has been damaged by a conflict, but where sufficient capacity for planning and policy implementation nevertheless exists. IMF financing can help a country directly and by catalyzing support from other sources, since Fund support must be part of a comprehensive international effort to address the aftermath of the conflict. Since May 2001, for post-conflict cases which were eligible for the IMF's concessional facilities, the interest rate on loans was subsidized down to 0.5 percent per year, with the interest subsidies financed by grant contributions from bilateral donors. From January 2005, a similar subsidization of emergency assistance for natural disasters was provided".[38]

- Exogenous Shock Facility: 10. "The ESF-HAC, which was established in 2008, provides concessional financing to PRGT-eligible countries facing balance of payments needs caused by sudden and exogenous shocks".[39] There is also a Rapid Access Component, which is designed to provide immediate, or quicker at least, relief to the member country.

- Extended Fund Facility: 8. "The Extended Fund Facility is used to help countries address balance of payments difficulties related partly to structural problems that may take longer to correct than macroeconomic imbalances. A program supported by an extended arrangement usually includes measures to improve the way markets and institutions function, such as tax and financial sector reforms, privatization of public enterprises, and steps to make labor markets more flexible".[40]

- Compensatory Financing Facility: 5. "The Compensatory Financing Facility (CFF) was established in 1963 to help countries cope with temporary exogenous shocks affecting export earnings without resorting to undue and unnecessary adjustment".[41]

- Staff-Monitored Program: 18. It is a non-monetary program, and it does not need to be approved by the IMF Board. Indeed, SMPs are "informal and flexible instruments through which previously stray-economies can show that they have improvement plans that can be closely monitored by members of staff of the Fund".[42]

38 Ibidem.
39 Ibidem.
40 Ibidem.
41 Ibidem.
42 http://allafrica.com/stories/200604280246.html

- Policy-Support Instrument: 7. "The Policy Support Instrument (PSI) supports low-income countries that do not want—or need—Fund financial assistance but seek to consolidate their economic performance with IMF monitoring and support".[43]

43 IMF Factsheets.

3. Literature Review

The issue of Chinese presence in Africa is a recent one, and therefore, while the discussion at the descriptive level is already advanced, less, or even nothing, has been done at the empirical level, in particular as it concerns the role of Chinese funds as an alternative to the International Financial Institutions' programs.

3.1 Factual Analysis

Chinese presence in Africa can be, and has been, analyzed by various perspectives. In this work we focus on the implications for the IFIs and the world geopolitical equilibrium. This literature review will, of course, be a partial one, following our needs, but we tried to be as exhaustive as possible, picking also some studies that suggest interesting policy implications, which will be considered in the concluding part of our paper.

One of this studies is Pehnelt (2007) which presents a political economy analysis of the Chinese penetration in Africa. In particular, he reviews the "no strings attached" policy of granting non-conditional loans, contrarily to what IFIs do. Pehnelt underlines the possible fields of conflict that may arise because of the Chinese strategy: the progressive erosion of IFIs importance in Africa per se; the support given to corrupt or more generally non-democratic countries; and the deepening of the debt spiral (although there is evidence that denies the free riding China was accused of having practiced by granting loans to countries participating in the debt relief initiative[44]).

Pehnelt concludes his analysis with a list of policy implications for the donor community. Leaving aside the issues of conditionality and democratization, which are, instead, the focus of our work, the author suggests first of all that the G8 helps China develop an aid bureaucracy, and also an aid culture we should add, so that the G8 and China can conduct harmonized aid projects, based on data transparency and cooperation.

Bräutigam (2010), after surveying the existing literature on the issue, goes in the details of the challenges posed by Chinese instruments in Africa to the Western donor architecture. As she points out, the issue is twofold. On the one hand, China might foster corruption by giving money to poorly

44 See Foster, Butterfield, Chen, Pushak (2009).

governed regimes. On the other hand, China might sustain regimes that would otherwise be forced to adhere to Western standards in order to have access to much needed funds. The author notes, however, that although the IFIs have policies that account for democratization and transparency concerns, no government has ever forbidden the companies of its own country to make business with the so-called rogue countries (arms embargoes are, according to the paper, the only exception together with Sudan for the Darfur genocide).
Furthermore, she comments that although transparency on Chinese aid is an issue for researchers as well as for those who want to know where the money goes, what matters more for African development is the tying that often comes with the money. An issue for the future, she says, should be mandatory competitive tenders for the procurements.

Other authors, like Foster et al. (2009) and Taylor (2006), underline the importance of Chinese projects and investments for their specificity. On the one hand, Foster et al. stress the fact that the West does not implement infrastructural projects, in spite of African need for infrastructure. On the other hand, Taylor emphasize the lack of investments by sources other than Chinese companies.
Another contribution on the optimistic side concerning the coexistence of a Washington and a Beijing consensus is Joseph (2008). The author notes that the more China is involved in Africa, the more it will work for the stability and safety of its assets, which might go in the direction, at least in part, of democratization, as we said in the first chapter referring to the Nigerian case. Moreover, Chinese investments in Western countries, which are also increasing, could make it possible for international institutions to be listened to when they ask for compliance with international standards, constituting a bargaining asset. In addition, after 9/11 the US have important stakes in contrasting radical Islam in Sub-Saharian Africa (they activated the US Africa Command in 2008), that could lead in the future to an alliance with China and has already lead to a lowering of the standards requested by collaborating African countries, as we have seen in the case of Sudan, for example, as Joseph emphasize.
A unique contribution on the African democratization is the one by Meyersson, Pedro y Miquel and Quian (2008). Using an instrument they are able to assess the effect of trading with China on a number of variables, including political ones. In particular, they find that exporting natural resources to China has negative effects on human rights, but these effects do not differ from the ones caused by exporting natural resources to the US. Their results, in some sense, point in the direction of the natural resource curse, though mitigated by characteristics of the trading partner (trading with India seems to improve

political institutions, instead).

This study casts doubts on the fear that Chinese presence in Africa would lower democratic standards (or at least that it would lower them more than the consolidated Western presence). Some episodes, however, seem to support it. A speech by Abdoulaye Wade, President of Senegal, is an example of the attitude that African states have towards the more "liberal" (!) Chinese policy with respect to Africa. "Western complaints about China's slow pace in adopting democratic reform cannot obscure the fact that the Chinese are more competitive, less bureaucratic and more adapt at business in Africa than their critics", Wade said. Some African scholars, and even the man of the street, however, blame their governments for the lack of transparency in their relationships with China, and scandals are beginning to be discussed on newspapers. Chinese banks are being trialed for applying unfair conditions, like in the Namibian scanner deal.[45] Indeed, scholars and taxi drivers do not think that the Chinese political system, which they strongly criticize, is a model for Africa.[46]

In summary, China's foreign policy in Africa is defined as non-interventionist, and aimed at peace, development and trade (in one, very Chinese, word: harmony). It is to be said, however, that when a president candidate in Zambia threatened Chinese businesses by proposing protectionist measures to save jobs in sectors harmed by Chinese competition, such as the textile industry, Beijing made it clear that he should not win. Therefore, although the areas of intervention are different from the traditional focus of Western powers, Hu Jintao cannot be said to ignore his country's interests, and it does so at detriment of African self-determination.[47] This is probably what the paper by Mayersson et al. captures.

3.2 Methodological Issues

Our work faces two main challenges: on the one hand it would be useful to disentangle demand and supply drivers in IMF programs decisions; on the other hand the lack of data on the Chinese side does not allow a straightforward assessment of Chinese engagement in Africa. In this section we review the relevant literature on the methodology regarding the first issue.

We exploit two different techniques. The first one is rather innovative, while the second one is the traditional instrumental variable estimation, to which we contribute mainly by proposing two original

45 See for instace http://www.namibian.com.na/index.php?id=28&tx_ttnews[tt_news]=57582&no_cache=1

46 See for an interesting accounts of these thoughts Georgy (2008).

47 Cohen (2006).

instruments. The results we find are mutually reinforcing, providing evidence of the goodness of both methods.

Stone (2008) uses a bivariate probit model to estimate the two forces that have an influence in the onset of an IMF program. The decision follows a negotiation between the Fund and the country. Of course, the negotiation follows an informal request of funding by the country and the final decision depends on the approval (possibly after some adjustments) by the IMF of this initial request. The bivariate probit model, first developed in Poirier (1980) for modeling employment decisions where employer and employee interact, allows the author to distinguish the two sides and provides estimates of two probabilities, or propensities.

Finally, we draw from Bal Gunduz (2009) as for the set of determinants of IMF decisions. We will discuss these innovative variables in the next chapter.

This is all we could find in terms of studies that have the ambition to get insights in the decision process of IMF programs, leaving much room for a new stream of research. The rest of the literature relies on instruments that, even if valid, naturally address only one side of the problem, the supply side, as we will see later in the paper.

Bird (2007) provides, once again, a good review of the relevant literature. In this section we will draw from his work.
Barro and Lee (2003) provides instruments for IMF programs, modeling the IMF as a bureaucratic and political organization. The bargaining power of a country in a negotiation, they argue, depends on the size of the country's quota and on the number of the IMF's professional staff that comes from that country. Anyway, we cannot use any of these instruments. Information on the country of origin of IMF staff members is only available every five years, and our sample is too short to allow for five-year periods (also, as we already argued, Chinese presence is a relatively recent issue and we could not afford to compress the effects we were interested in to obtain five-year-periods). An analogous problem regards the country's quota. Quotas have changed only twice during our sample period, in 1992 and in 1999[48]. Because of the persistence of the variable, it is found to have a significant effect

48 See IMF Factsheets.

(though a negative one, as we will see in Chapter 6) on IMF programs, but the instrument is weak.

The authors, finally, suggest a third instrument, following Alesina and Dollar (2000)[49]: a country connection to the USA, measured using the voting patterns at the UN General Assembly. However, we find that the variable is insignificant, maybe because our sample focuses on a different, more recent period, with a different geopolitical equilibrium.

Our study owes much to the work of Randall Stone, not only for the use of the bivariate probit specification, but also for his research on political drivers of IMF decisions (he is indeed a political scientist). In an earlier study (Stone, 2004) he stresses the importance of political constraints. Political variables, he argues, act in three ways: they describe a government's preferences (and those are the ones that try to capture the orientation of the government); they determine the government's ability to implement its program (measures of a government's support, proportional versus majoritarian system indicators); and they capture the stability of a government, which in turn could be taken into account by the IMF in its decision. Following him, we added political variables in our regressions, and found interesting results.

3.3 Data Issues

Both Pehnelt (2007) and Foster et al. (2009) exploit press releases to estimate Chinese commitments. African, Chinese and international sources are analyzed and compared to get a picture as detailed and realistic as possible. Foster et al. add more steps to the procedure in that they confront press announcements with data collected by the World Bank and then ask for confirmation by Chinese official sources. What they report is that the press releases provide an upper bound for Chinese confirmed projects.

We could not draw on their work, unfortunately, since they focus on infrastructure projects. We leave it for further research to compile a dataset of Chinese aid and funding to Africa, one that can be used not only for descriptive statistics, but also for econometric research.

49 Note that they find no evidence that alignment with US voting behavior increases the amount of aid received, but they analyze aid and not IMF programs, and they do not focus on Africa.

3.4 Theoretical Framework

To our knowledge, there is no literature on credit substitution at the macro level. Thus, we had to rely on microeconomics models of credit provision. In particular, we followed two streams of research: vendor financing and informal credit markets.

In both cases, there is a status quo, the traditional banking system, and an alternative which addresses different needs of the individual, usually a firm or an investor. We consider the IFI to be the status quo lender, while China represents the alternative source of credit at the disposal of the government of an African country, our decision maker.

In particular, the vendor financing literature tries to explain why suppliers provide credit to firms (trade credit) via payments dilation even in presence of perfect credit markets. Petersen and Rajan (1997), following the seminal paper by Meltzer (1960) hypothesizes that suppliers are able to price discriminate through credit, thus providing funds also to low quality investors. The discriminant lies in the fact that suppliers factor in also the net present value of their future profits when calculating the interest rate they are willing to set.

The basic idea in our model is that China, being a country, is intrinsically different from any IFI. In particular, China might be able to set lower interest rates because it gets resources in exchange for funds. However, we do not have detailed data on the interest rates applied by China. Thus, we had to consider different costs of funds.

Therefore, we model democratization as a condition attached to the IFI's programs, and we draw useful insights from the principal-agent literature.[50] This is not in contrast with the vendor financing analogy: a natural extension of the model is that China values democracy, too (a good reason might be that investments are safer in a stabilized environment). However, the natural resource curse introduces a trade-off between resources and democracy that results in a sort of price discrimination.

50 See in particular Stiglitz and Weiss (1981).

4. The Model

Chronologically, Chinese presence in Africa has becoming more and more important after the IMF had already established its predominance as a lender and supporter of African countries. Thus, we are eager to find economic reasons that can explain in what sense China was filling a gap or providing a better alternative with respect to IMF funds. Ex ante it is difficult to make predictions on the level of substitutability between Chinese and IMF programs. In fact, LICs are a risky business for borrowers, for economic as well as for political reasons, as both asymmetric information and moral hazard problems might arise. Thus, we resort to theory, and we construct a very simple, but therefore clear cut, model, whose implications we can test in the empirical section.

In this model we focus on the role played by what we call political variables in IMF and China lending decisions. This is not the only channel through which credit substitution may arise. Economic explanations include the possibility of using resources as collateral when dealing with China, thus overcoming limited liability issues. However, in the empirical section we observe a predominance of political variables, which justifies our partial model.

Ours is a one period model. Repeated interactions and reputation play a big role in aid and loan programs. Nonetheless, the findings in this simplified setting are already insightful, and we leave extensions for further research.

Consider a continuum of identical and perfectly competitive financial institutions providing funds to heterogeneous countries. This is not a restrictive assumption since there are many different financing institutions that compete among themselves also based on reputational motives.
Furthermore, the financial institutions care about the level of democracy in the borrowing countries and try to induce their preferred democracy standards.

This is a two-stage game. First the financial institution decides whether to initiate a program in the country, and only after that the government sets the optimal level of democracy (in particular for the sake of time we assume that the game ends if no program is started).

Assumption 1: No commitment hypothesis.

The government maximises its ex-post utility. In other words we look for the Subgame Perfect Equilibrium.

Assumption 2: Perfect enforcement.

We rule out the possibility of default without too many worries, because we observe that very few countries have arrears with the IMF. This, in exchange, gives us the possibility to focus on the application of the conditions that come with the programs.

In particular, let d_i be a measure of a country level of democracy.

$$d_i \in \{d_l, d_h\}, 0 < d_l < d_h < 1$$

i.e., the government can choose the preferred level of democracy.

Assumption 2 together with the zero profits condition gained from the existence of a continuum of interchangeable financial institutions is useful to simplify the institutions' utility functions. Note that they are identical across institutions, thus we will omit the subscript for ease of notation. First, however, we need more assumptions on the functional form of the utility functions.

Assumption 3: Both financial institutions and countries are risk neutral.

Linear utility functions for financial institutions are frequent in the literature. For the sake of tractability, we choose them also for countries. More sophisticated utility functions are left to further extensions.

In particular, the utility a financial institution has from a program in country i is:

$$U^{FI} = \begin{cases} 1 + (d_h - d_l) + \pi = 1 + (d_h - d_l) & \text{if } d_i = d_h \\ -d_l < 0 = U^{FI}_{no\_program} & \text{if } d_i = d_l \end{cases}$$

since we have $\pi = 0$:

We assume the second case to be true to rule out indifference. The financial institution will only provide funds to countries that can credibly commit to the conditions attached to the loans (which at least in the statements of IMF officials is what should happen).

In this model, countries are heterogeneous in two ways. On the one hand, they differ according to their economic performances. On the other hand, the governments are subject to different levels of accountability.

In particular, we denote q_i the return to the country on the external funds, with $q_i > 0 \ \forall i$.

q_i is given once and for all. It might reflect natural resources availability or the infrastructure stock at the beginning of the model.

It seems reasonable to us to exclude the possibility that q_i enters the utility function of financial institutions because these intermediaries have a sort of moral duty to provide help to all countries, especially to the poor ones, with specific programs (see for instance debt cancellation).

Assumption 4: Democracy is beneficial for a country's welfare.

The literature on democracy and growth is infinite, and the results are ambiguous. However, we make this assumption to show that even in the case most favorable to financial institutions, i.e. one in which their interests and those of the borrowers are aligned, there is still room for credit rationing. Furthermore, the multiplier effect of democracy could be seen as standing for the catalysis effect that IMF programs have on other kinds of external funds, like FDI.

Finally, there is heterogeneity in government accountability. In particular, when $d_i = d_l$ officers have the possibility to extract an amount R of rents, of which, however, they can enjoy only a share φ_i. Thus, φ_i is an inverse measure of accountability ($\varphi_i \in [0,1] \ \forall i$). When $d_i = d_h$ instead, the government is assumed to be transparent.

Therefore, the utility function of a country's government in presence of a funding program is the following:

$$U^G = \begin{cases} q_i(1+d_h) & \text{if } d_i = d_h \\ q_i(1+d_l) + R\phi_i & \text{if } d_i = d_l \end{cases}$$

Note that we refer to the utility function of the government, which is not a benevolent dictator. On the contrary, we assume the existence of an underlying political economy equilibrium.

Maximization of the government utility function leads to the government choosing

$$d_h \ iff \ q_i(1 + d_h) \geq q_i(1 + d_l) + R\phi_i$$

(we break indifference in favor of financial institutions, since they represent a status quo). Rearranging terms we obtain condition (1):

$$\frac{(d_h - d_l)}{R} \geq \frac{\phi_i}{q_i}$$

Result 1: Partial differentiation shows that condition (1) is easier satisfied if:

a) the difference in the democracy standards wanted by the financial institution and the one that enables rents is higher. Indeed, this raises the opportunity cost of being in a non democratic setting;

b) the amount of appropriable rents is low. This is obvious, but it is interesting to think of the determinants of these rents. The presence of natural resources, for instance, allows the extraction of large rents;

c) the level of accountability is high. Accountability (checks and balances) reduces the extent to which government officers can enjoy their rents;

d) pre-existing economic conditions are better. The multiplier effect of democracy will be higher if the returns to the programs are higher.

An interesting point to make for the empirical section is the role of government stability. Given a high level of democracy in a country, government stability, as measured by the control government parties have over parliament houses, is beneficial for growth (there is a long literature in political economy showing this). Thus, we can think of q_i incorporating also this aspect, once we account for the level of

democracy.

Now, it is easy to solve the model backwards for the decision of the financial institutions. Funds will be provided only to those countries that will choose a high level of democracy in the second stage.
In particular, set

$$x_i = \frac{\phi_i}{q_i}$$

and let

$$x_i^* = \frac{(d_h - d_l)}{R}$$

Then, access to credit will be provided only to those countries that satisfy

$$x_i \leq x_i^*.$$

If we are willing to assume that these programs foster growth, we are then in presence of a welfare-decreasing credit rationing.

Now we extend the model to allow for other agents (possibly other countries, so we will call them lender countries) to finance programs.
Once again, we want to consider the case most favorable to financial institutions, and we rule out the possibility of a competitive advantage by these newcomers.

Assumption 5: Lender countries are perfectly competitive among themselves and thus have zero profits. Moreover, the economic conditions they arrange on their programs in equilibrium are equal to the ones set by financial institutions.

Note that we could extend the model by allowing also for non-monetary profits, or benefits related to access to resources, but the results would not change.

Assumption 6: Lender countries do not care about democracy in the borrowing countries.

This is crucial for the results of the model. Of course, what we have in mind is Chinese claims of non-interference, that are also supported by the data, as we will see in the empirical section of this work.

However, we think that this applies also to Western countries that have traded and still trade with controversial governments, as we mentioned in Chapter 2.

Assumption 7: Lender countries' utility is a positive function of the number of aid programs they provide.

Every new program started by a lender country has two effects. On the one hand, it strengthens the country's link to the borrower, which might lead also to more trade, which is beneficial to the country. On the other hand, it improves the country's "international status", and raises its geopolitical relevance.
The last three assumptions and a further linearity one allow us to model the utility function of lender countries in the following, very simple way:

$$U_j^{LC} = n_j$$

where n_j is the number of programs it has with borrowing countries.

Result 2: It is evident that these countries will always provide funds when asked for: countries such that

$$x_i > x_i^*,$$

who were excluded from programs by financial institutions, will receive aid and loans by lender countries. The non-interference doctrine leads lender countries to fill in the gap left by financial institutions.

Our analysis leaves room to two very important extensions:

1) what happens if we consider country risk levels in lender countries decision? And in particular, what happens if country risk levels depend somehow on democracy?
We could model this as if lender countries divide their "clients" in a group of feasible and one of dangerous countries, according to a critical value of democracy $\overline{d}$.
If $\overline{d} < d_h$ the presence of lender countries still provides access to credit to more countries than before.
In particular, as we hypothesized in the previous chapter, the critical value $\overline{d}$ might depend from the

trade-off faced by the lender country: more democracy leads to safer investments, but an autocracy might be more corruptible and provide a preferential access to resources, as might be the case according to the natural resource curse theory.

This is an intriguing extension, indeed. However, in our data we do not find evidence of a selection of borrowing countries according to the production of natural resources. In fact, we only control for oil production, and it might be interesting and insightful to deepen our analysis.

2) What happens to those countries that already receive funds by financial institutions? Do they stick with them?

To answer this question we should have more insights on the government's utility function, and in particular to the different effects of financial institutions and lender countries' programs. We leave a thorough analysis for further research.

However, we can still speculate on one aspect. Resource rich countries can use their commodities as collateral when dealing with lender countries which are interested in them. This results in a competitive advantage of lender countries over financial institutions, and enables them to lower interest rates (assuming interest rates are the choice variable). This would, then, lead to a substitution effect also in the set of countries such that

$$x_i \leq x_i^*.$$

One caveat, however, is that we do not find any empirical evidence that resource rich countries deal more with China than other African countries.

5. The Data

It is hard to collect data both on Chinese aid to Africa, our ideal dependent variable, and the determinants of IMF programs, our regressors of interest. One of our main contribution is an original dataset which combines information about IMF funding as well as different measures and proxies for the Chinese presence in Africa. It is an unbalanced panel of 1113 observations of the 53 African states from 1989 to 2009.
In this section data sources and summary statistics are provided for the relevant variables.

5.1 Dependent Variables

Presently, there exist no complete and reliable dataset on Chinese aid in Africa: we had to find alternative ways to proxy for Chinese presence in the continent.
One of the original contributions of this paper is to indicate the number of diplomatic visits between China and a given African country as a proxy for Chinese involvement in that country. First of all, projects and grants are usually agreed upon during these visits: contracts are signed leaving it to technicians to then define the details of the agreement. Secondly, we are able to distinguish the "quality" of the diplomatic contacts by the government members that are involved. This provides us with a scale that proxies the variation in aid data, where the amount of the loan or grant is a natural way to appreciate the relation between the donor and the lender.
In the paper we use two different variables (and their lags):

- *presidential visit* represents the number of visits by the president, vice-president or premier of the country to China and viceversa;

- *visit* represents the total number of reciprocal visits.

Our hypothesis is that presidential visits occur between countries that are mostly involved together or that wish to boost their cooperation, and this is also what emerges from the empirical analysis. Furthermore, presidential visits are of particular importance between countries that have relatively

young economic relationships, since these newly established relations need to be "oiled" by the leaders' official statements.

This holds with two caveats: agreements are signed also by foreign or economic ministers, which are included only in the broader variable, and, as can be seen in the table of summary statistics, *presidential visit* presents much less variation than *visit.* This issue will be discussed further when we present the results of the empirical analysis.

The source of the data is the website of the Ministry of Foreign Affairs of the PRC[51], integrated with information found on countries' embassies' websites. In our opinion, there is no reason to fear selection problems. It could be the case that Chinese officers decide which visits to publish on the website, but the available list of visits is pretty long and detailed and does not hint to any difference among countries.

Figure 5 and Figure 6 show the empirical distribution of *presidential visit* and *visit.* Despite the smaller variance of the first variable, a trend is recognizable in both indicators. Indeed, diplomatic visits between China and African countries are increasing in two dimensions: on the one hand, less countries show zero interactions; on the other hand, the range of the two variables increased over time, i.e. some countries consolidated their relationship with China so that the number of the visits increased.

Despite the difficulties, we also tried to directly estimate Chinese concessional loans and grants in Africa. To do so, we searched for press releases in the Lexis Nexis database[52], and then refined the results in case of ambiguities with further searches on the web and on Chinese governmental websites in particular. This is nothing like the intense project that Foster et al. developed with Chinese financed infrastructures, but it provides another piece of support of the thesis proposed in the paper. Furthermore, we believe that it is useful to have at least a tentative measure of Chinese aid in the dataset, since finally it is the focus of the paper.

The variable *chinese loan* is in millions of US dollars.

Clearly, selection could be a problem, with more problematic countries (oil producers, for instance) being more likely to be followed by the media. It is to be noted, however, that Lexis Nexis includes African sources that cover every country. Anyway, we do not use this variable in the empirical analysis, except for some back of the envelope calculations, so we do not need to worry too much.

Table 1 shows the countries that have received the most aid by China.

51 http://www.fmprc.gov.cn/eng/wjb/zwjg/

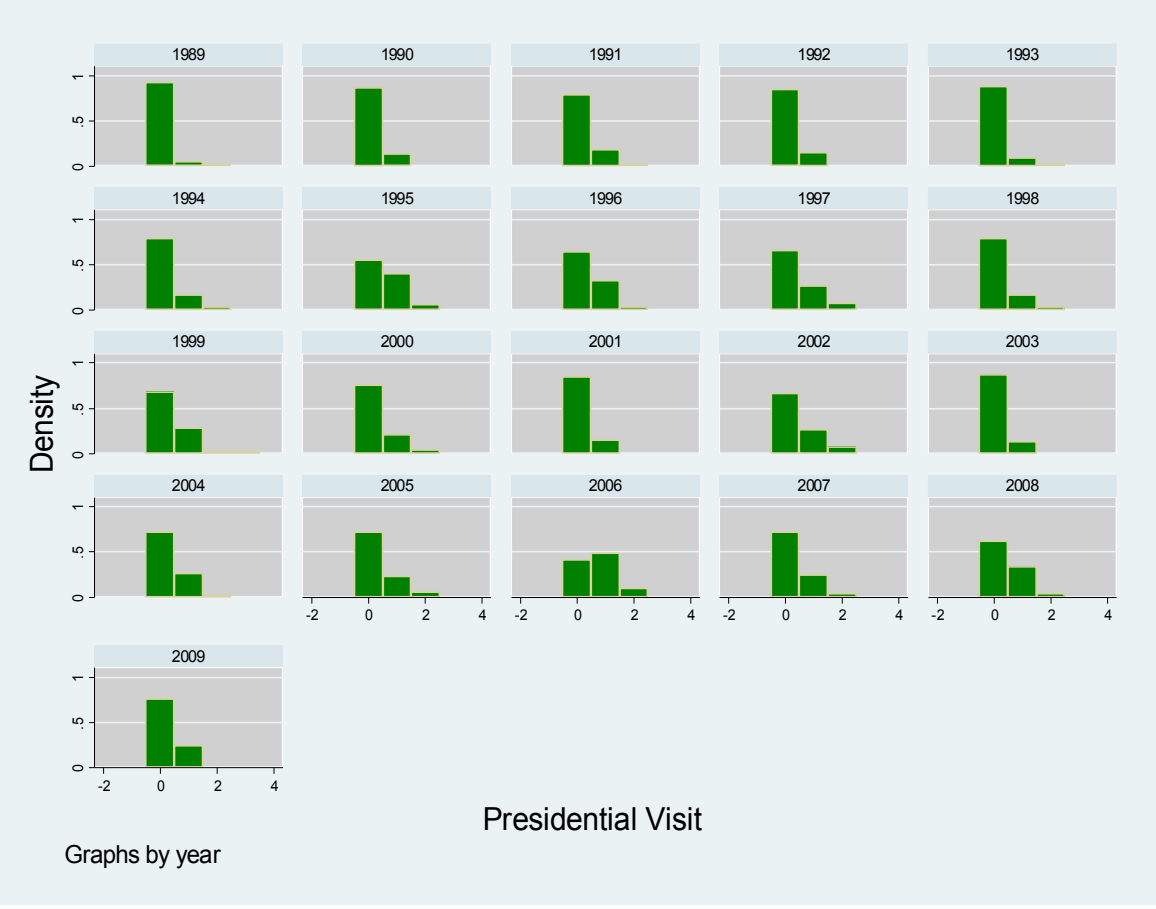
52 For each country we searched "Country China loan", "Country China aid", "Country China grant".

Table 1. Total Chinese Loans

Country	Total amount of Chinese Loans over the Period (in millions US dollars)
DRC	5035.1
Nigeria	3165.7
Equatorial Guinea	2011.25
Zimbabwe	1053.6

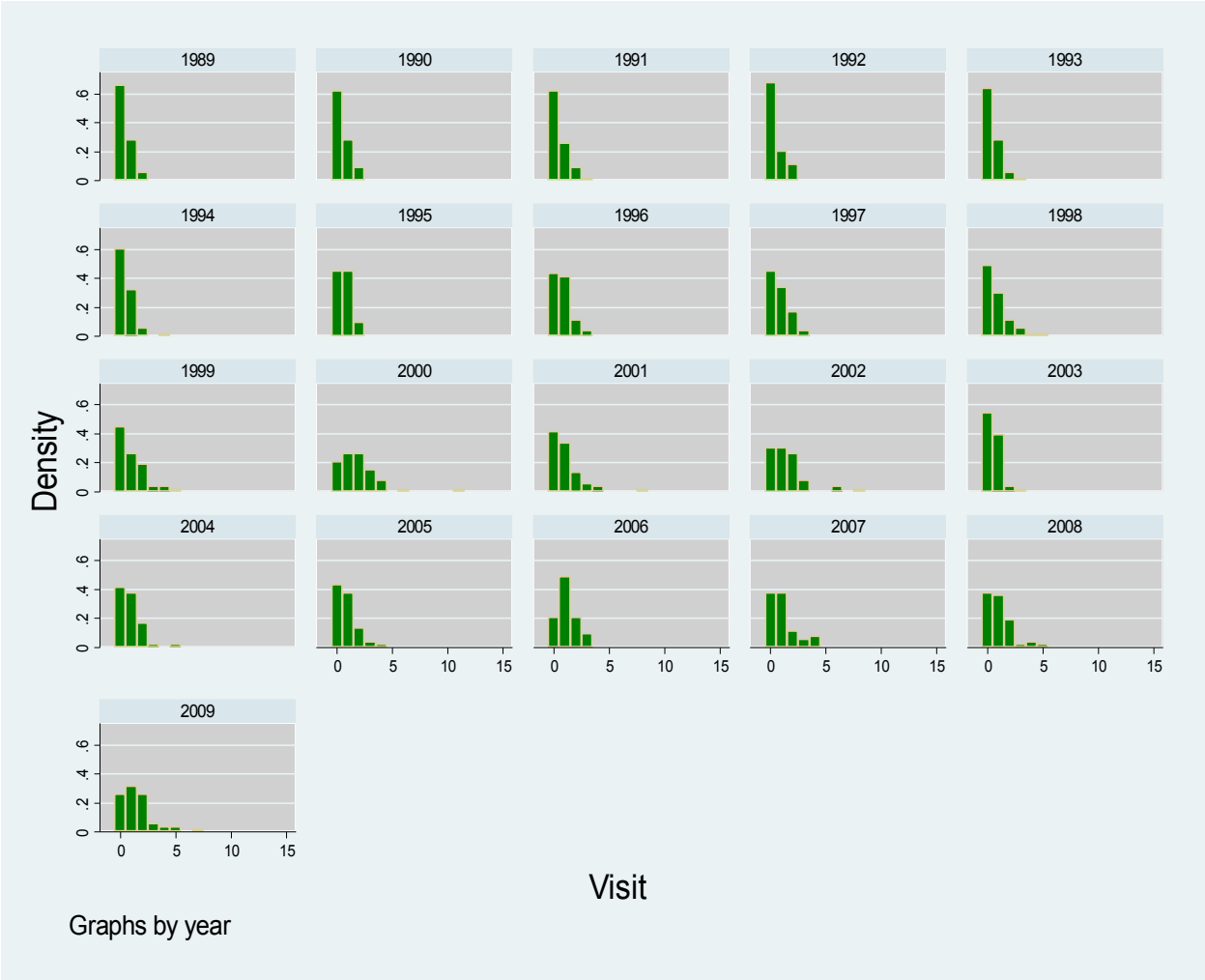
Source: Authors' calculations on data from press releases.

Figure 5. Density Distribution of *Presidential Visit.*



Source: Authors' calculations on data from the Ministry of Foreign Affairs of the PRC

Figure 6. Density Distribution of *Visit.*



Source: Authors' calculations on data from the Ministry of Foreign Affairs of the PRC

Finally we use exports towards China (*exportchina*) as a proxy for Chinese aid. Indeed, many of these loans and grants are asset-backed and involve direct flows of resources to China. Moreover, others consist in the financing of infrastructure projects to enable Chinese contractors to extract resources. Thus, exports are correlated with Chinese aid through various important channel.

The data come from the COMTRADE dataset, but we rescaled them to be in billions US dollars.

Table 2 reports summary statistics for the dependent variables.

Table 2. Descriptive Statistics of Chinese Presence in Africa

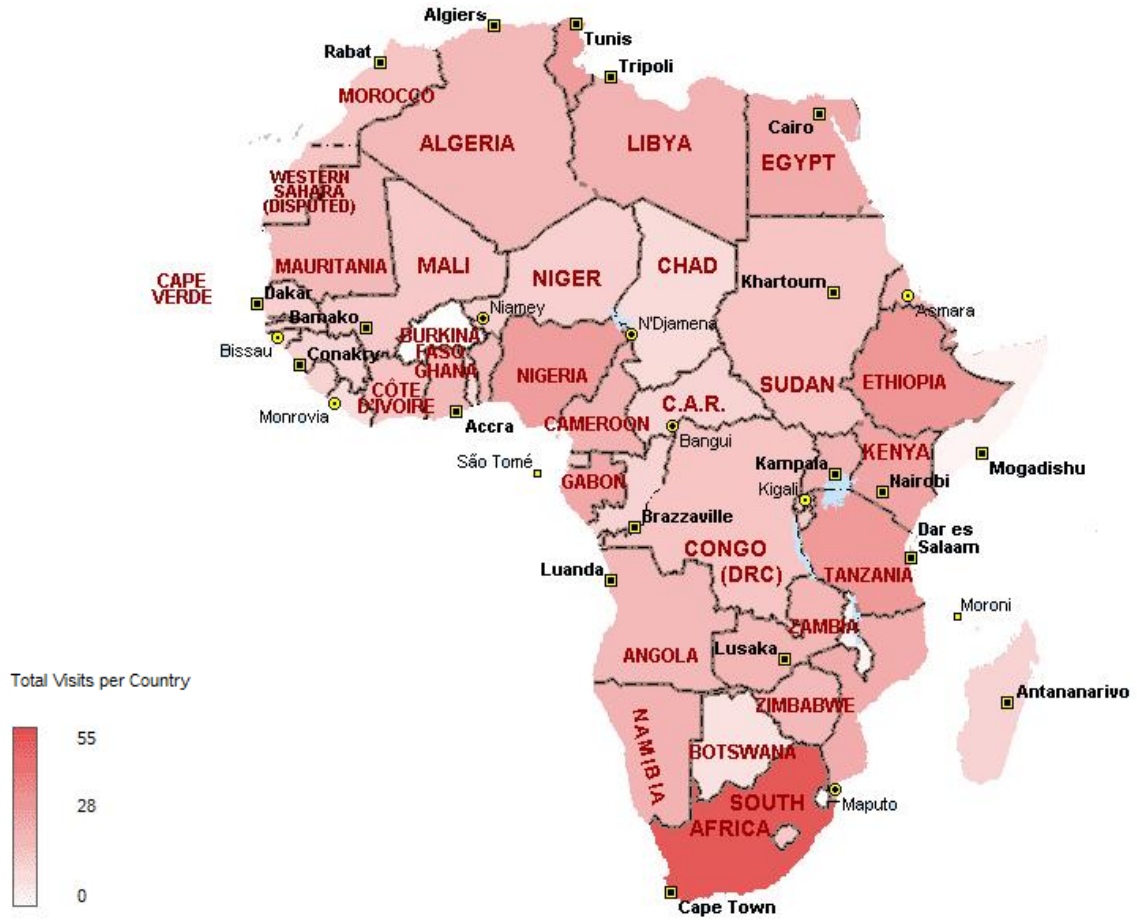
Variable	Obs	Mean	Std. Dev.	Min	Max
presidential visit	1113	0.3	0.53	0	3
visit	1113	0.87	1.12	0	11
chinese loan	1113	15.73	185.74	0	5000
exportchina	932	2.5	12.6	1.00E-008	224

Source: Authors calculations on data from the Ministry of Foreign Affairs of the PRC and COMTRADE.

Figure 7. Total Number of Reciprocal Presidential Visits with China per Country.

Source: Authors' calculations on data from the Ministry of Foreign Affairs of the PRC.

Figure 8. Total Number of Reciprocal Visits with China per Country.



Source: Authors' calculations on data from the Ministry of Foreign Affairs of the PRC.

It is interesting to note that the correlation between *chinese loan* and the other variables (all lagged except *exportchina* whose effect is presumed to be contemporary) is positive but very low (a little bit more than 0.02). This, however, is probably due to the measurement errors in the variable *chinese loan.* Indeed, both visit variables display a higher correlation (0.15) with *exportchina.*

Figures 7, 8 and 9 show the distribution of visits and exports per country over the entire period of interest. Exports are more evenly distributed, and except for South Africa, which is clearly a preferred partner, the patterns of visits and exports do not really coincide. However, exports are a good benchmark for our main variable, since although the intensity might vary, we can still identify

similarities: North Africa countries appear to be good partners of China, as are Gabon, Nigeria, and, to a lesser extent, Tanzania, Angola, and the DRC.

Figure 9. Total Exports to China per Country.

Source: Authors' calculations on data from COMTRADE.

5.2 IMF Programs Variables

All variables regarding the IMF presence in Africa were derived from the IMF website. Actually, the information originally available was much more than what we could exploit in the empirical analysis due to all the problems in estimating the effects of participation in IMF programs. For instance we know the amount initially agreed for each program *(amountagreed),* the total amount effectively drawn *(totalamountdrawn),* and the amount drawn each year *(amountdrawn_yearly).* For completeness, Table

3 displays summary statistics for all these variables. Note that often the programs are suspended, canceled or the amounts effectively drawn are smaller than originally agreed. Sometimes, instead, programs get extended. Furthermore, some programs are only provisional, in that the IMF agrees to put a certain amount of money at a country's disposal, and the country might or might not use it. In this sense, what appears as a suspension (and we might think it due to failure to comply with conditionality) is actually a sign of good conduct, in the sense that the country is able to walk on its own legs.[53]

In constructing the dataset we have corrected our variables to account for this issue. This is one of the reasons why we could not take advantage of the data on the size of the programs. In our analysis, in fact, we had to limit ourselves to dummy variables indicating either participation in IMF programs *(program* and *monetary_program,* with the last one referring only to monetary programs) or the onset of a new program *(program_new,* and *monetary_new* respectively). Note that these last two variables had to be corrected to account for the fact that if a program is already in place, no new program can be started.[54]

From the IMF website we also took data on national quotas (*quota*) and total IMF disbursements per year (*totaldisbursement*).

Table 3. Descriptive Statistics of IMF programs in Africa

Variable	Obs	Mean	Std. Dev.	Min	Max
program	1113	0.43	0.5	0	1
monetary_program	1113	0.4	0.49	0	1
amountdrawn_yearly	1106	1999.65	20130.07	0	614430
totalamoundrawn	1112	1816.78	31684.79	0	843432
amountagreed	1112	2351.5	34536.17	0	883432
program_new	824	0.24	0.43	0	1
monetary_new	822	0.21	0.41	0	1
quota	1000	227.61	360.66	3	1868.5
totaldisbursement	1113	11.3	7.96	1.29	26.6

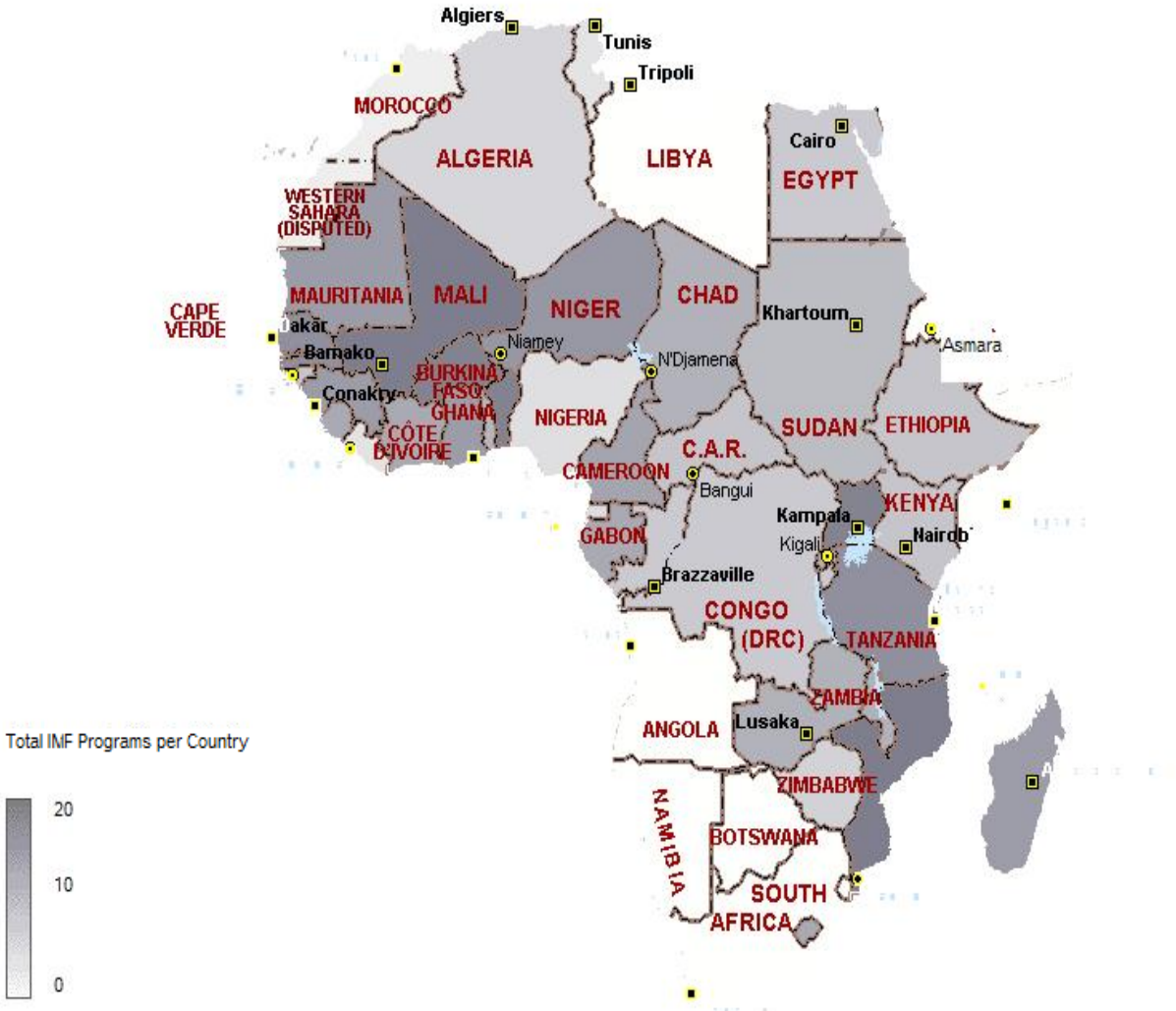
Source: Authors' calculations on IMF Disbursements & Repayments Data and IMF Country Reports.

53 See Bird (2007) for a review of the issue.
54 See the literature on civil wars' onset for an example of such a correction, for instance Miguel et al. (2004).

Table 3 displays summary statistics for these variables, while Figure 10 displays the distribution of total programs per country over the period of interest. Although there is some evidence of an inverse correlation with the variables capturing relations with China, it is not striking. Various reasons can explain this lack of decisive evidence, first of all the pooling of the data over twenty years. Indeed, Chinese penetration in Africa started long time ago, as many experts stress to avoid oversimplification.[55] However, the Chinese interest in good and valuable relations with African countries has increased by far over time, and were it not for the need of a bigger dataset, it might be useful to focus on the years 2000s. Indeed, a first glance at the data shows a negative but very low correlation between IMF programs and our variables regarding Chinese relations with African countries (smaller than 0.1). This correlation, however, is highly spurious. Ultimately, it is important not to forget that these are only descriptive statistics, and that we will need much more complex methods to draw conclusions on the relations between IMF programs and Chinese presence in African countries.

55 One and for all is Bräutigam (2009)

Figure 10. Total Number of Programs per Country.



Source: Authors' calculations on data from IMF Country Reports.

5.3 Economic Variables

Following the literature, we try to identify the economic determinants of IMF decisions. Being the IMF mostly concerned about short-term balance of payments need, we include:

- measures of the external debt (*external* and *external_gdp,* with the last one being the ratio of the first

one over GDP) from the World Bank Global Development Finance database;

- measures of the current account deficit (*current_account* and *curraccount_gdp,* with the last one being the ratio of the first one over GDP) from the World Bank World Development Indicators database;

- measures of the changes in the value of reserves, exchange rates (*d_xrate* and *d_reserve* respectively, source IMF International Financial Statistics) and terms of trade (*d_tot,* source Penn Tables).[56]

Furthermore, we account for the size and welfare of African countries by controlling for GDP, GDP per capita and GDP growth (with various measures of GDP: at current, constant or US dollar prices) from the IMF World Economic Outlook database.

Moreover, drawing from Bal Gunduz (2009), we control for global demand factors by extracting with a Hodrick-Prescott filter[57] the cyclical component of world GDP and world trade (*cycle_worldtrade, cycle_worldgdpppp, cycle_worldgdpcur* source: IMF WEO). We also account for fluctuations in the price of non fuel commodities (*d_nonfuelprice*, source: IMF WEO).

Finally, we include FDI inflows, as an indicator of economic and financial development, (*fdi* from World Bank GDF), and we create a dummy for oil producing countries (*oil_producer*, source: USGS Minerals Yearbook, various years).

A last variable, which can have both an economic and a political flavor is aid from the DAC countries, *aid_dac,* from the OECD DAC database.

Table 4 shows summary statistics for these variables.

56 As in Bal Gunduz (2009) we also constructed an index of overall macroeconomic stability. Due to limitations in the data availability, however, we did not use the variable in the empirical analysis.

57 For reference, both theoretical and for Stata applications, see Baum (2006).

Table 4. Descriptive Statistics of Economic Variables

Variable	Obs	Mean	Std. Dev.	Min	Max
d_xrate	1058	4567.92	148492.4	-610.34	4830000
d_tot	1005	0	0.16	-1.1	1.03
d_reserve	986	297.35	1509.72	-2928	23188.4
gdp_pc_con	1058	338566.1	839339.2	117.84	6389565
gdp_pc_cur	1050	354505	1186655	0	19100000
gdpcon	1059	1857.36	2956.18	0.39	18103.16
gdpcur	1049	2138.88	4989.19	0	65753.75
gdpdol	1059	14.43	32.72	0.07	287.22
gdpchange	1054	3.96	7.73	-41.89	149.97
d_nonfuelprice	1113	0.86	11.06	-30.63	23.24
cycle_worldgdpppp	1113	0.11	1.55	-2.7	3.8
cycle_worldgdpcur	1113	0.19	3.96	-6.72	12.28
cycle_worldtrade	1113	0.26	10.18	-25.83	32.04
fdi	1033	299	956	-1300	11600
external	989	5960	8140	29.1	45700
external_gdp	940	186	836	0.09	9600
current_account	1072	0.16	3.66	-20.49	42.26
curraccount_gdp	1056	-0.01	0.08	-0.92	0.79
oil_producer	1113	0.29	0.45	0	1
aid_dac	1047	285.13	531.49	-45.13	10820.01

Source: Authors' calculations on data from WEO, IFS, GDF, WDI, Penn Tables and USGS Minerals Yearbook

Note that in the database there are six cases of negative aid flows towards African countries. Despite the appearance this is not an error, and it shall not be corrected. Negative aid flows might originate from payments of arrears to previous donors, for instance.[58]

A quick glance at the data sources named above (but this holds also for the set of political variables) shows that we tried to use as much variables from the IMF and World Bank various databases, in order to obtain results that are similar to the ones used by these institutions to take their decisions about programs.

58 See Clark (1992), for example.

5.4 Political Variables

We include various political variables in our analysis. Most of them were taken from the World Bank Database of Political Institutions.[59] These include:

- years to next election (*yrs_nextelection*). Cases in which there are no scheduled elections are coded as missing. To avoid selection issues and spurious results (dictators might cancel elections and dictators might be more or less prone to have relationships with China versus the IMF) we recode the variable to take the value 25 in case of dictatorship or kingdom, where the king has effectively the executive power. All other cases are still treated as missing values, and identify periods of turmoil, civil war or transition to democracy, when the constitution of the country is still to be approved. We call the new variable *yrsnext_cod.* Table 5 shows how this procedure affects over 200 observations. We choose the number 25 because it spans over our entire panel (like some dictatorships in the dataset, see for instance Mu'ammar Abū Minyar al-Qadhdhāfī in Libya) but it allows us to take into account the life expectancy of other dictators, who where already old when our panel starts (see for instance Hastings Kamuzu Banda in Malawi). For robustness we also recode the variable to take the value 99 in those cases, as to underline the length of dictatorships or reigns (*yrsnext_99*);[60]

- years the chief executive has been in office (*yrs_inoffice*);

- political orientation of the executive, and of the leading party in the government, with right coded as 1 and left as 3 (*executive_orientation* and *govern_orientation* respectively);

- dummy for the chief executive being a military (*military*);

- dummy for the executive controlling all relevant houses (*controlhouse*);

- margin of majority (*maj_margin*);

- checks and balances, with 1 as absence of checks and balance and increasing to 5 (*checks*);

59 See Kefer (2009) for further explanations.
60 We compared various sources, see for instance Uwechue (1996) and Nugent (2004).

- dummy for fraudulent election (*fraud*).

To this set of variables we added the Freedom House status (*status*).

Finally, we calculated s-scores for the similarity of voting patterns at the UN General Assembly between African countries and the USA (*sscore_us*) and China (*sscore_ch*). A value of 1 indicates an equal voting behavior of the two countries considered; the farther the value from 1, the more diverging are the two voting patterns. The data used are the United Nations General Assembly Voting Data.[61]

Table 5 shows summary statistics for this set of variables.

Table 5. Descriptive Statistics of Political Variables

Variable	Obs	Mean	Std. Dev.	Min	Max
yrs_nextelection	812	2.29	1.61	0	6
yrsnext_cod	1001	5.92	8.48	0	25
yrsnext_99	1001	17.83	35.59	0	99
yrs_inoffice	1055	10.22	8.76	1	42
govern_orientation	398	2.53	0.78	1	3
executive_orientation	417	2.53	0.81	1	3
military	1046	0.4	0.49	0	1
controlhouse	858	0.81	0.39	0	1
maj_margin	895	0.77	0.19	0.14	1
checks	1006	2.03	1.06	1	5
fraud	853	0.36	0.48	0	1
status	1109	2.25	0.72	1	3
sscore_us	997	0.26	0.09	0	0.67
sscore_ch	1447	0.26	0.09	0	0.67

Source: Authors' calculations on data from DPI, Freedom House website and United Nations General Assembly Voting Data.

61 Erik Voeten and Adis Merdzanovic, "United Nations General Assembly Voting Data", http://hdl.handle.net/1902.1/12379 UNF:3:Hpf6qOkDdzzvXF9m66yLTg== V1 [Version]. For a discussion of s-scores see Signorino and Ritter (1999).

6. Methodology

This paper analyzes how a country's IMF status affects its relationship with China. This is a very vague question, however, and we need to define more specifically what we mean by IMF status. Indeed, participation in IMF programs is the result of continuous interactions and negotiations and before proceeding to quick conclusions we might want to try to disentangle those opposing forces. Our main contribution goes exactly in this direction.

In our main model we follow a two-step procedure. First we estimate what we will call for simplicity demand and supply propensities for IMF programs onset. Then, we use our predicted values to evaluate the effect of a credit crunch by the Fund on the relationships between African countries and China.

A parallel analysis to corroborate our findings is conducted via instrumental variable regressions, which are widely used and accepted.

IV regressions, as already argued, do not allow us to distinguish the two different effects of demand and supply of programs. Nonetheless, they provide a useful and insightful benchmark for our more innovative main model. First of all, in fact, IV results are easier to interpret, in that they do not represent the interaction of two opposite forces. Secondly, these results are comparable with other Instrumental Variable Analysis carried using the predicted values of the bivariate probit model as instruments. And indeed, the substitution effect estimated with the two methods is almost identical.

Finally, our IV analysis contributes to the stream of research on the determinants of IMF programs. We propose two original instruments, the level of checks and balances and the extent to which the executive controls the Parliament, that we argue are exogenous to our estimation problem.

6.1 Two-Step Estimation

We use microeconometric tools to assess major macroeconomic trends. This is a standard procedure, nowadays, and the literature points to an ongoing refinement of these instruments.

The model that we have in mind when we look at the data is the following:

$$y_{it} = \alpha + \beta x_{it} + \boldsymbol{\gamma} \mathbf{Z}_{it} + \varepsilon_{it}$$

where the dependent variable measures the strength of the link between country *i* and China at time *t, x* is a measure of credit crunch regarding IMF funds faced by country *i* at time *t* and **Z** is a matrix of controls, like the ones that we listed in the previous chapter.

Unfortunately, there exists no measure of such a credit crunch. Instead, what we can try to estimate is the combined effect of a country's need for funds and the propensity of the IMF to start a program with that country at time *t*. To do so, we use a bivariate probit model with partial observability.

5.1.1. First Step

We observe:

$$\left\{ \begin{array}{c} x_{it} = 1 \text{ if country i starts a program with the IMF at time t} \\ x_{it} = 0 \text{ otherwise} \end{array} \right.$$

but

$$x_{it} = x_{it}^{d} * x_{it}^{s}$$

where the *d* and *s* stand for demand and supply, and where both right-hand-side variables are dummies. In particular:

$$\left\{ \begin{array}{c} x_{it}^{d} = 1 \text{ if country i needs a program with the IMF at time t} \\ x_{it}^{d} = 0 \text{ otherwise} \end{array} \right.$$

and

$$\left\{ \begin{array}{c} x_{it}^{s} = 1 \text{ if the IMF would approve a program in country i at time t} \\ x_{it}^{s} = 0 \text{ otherwise} \end{array} \right.$$

Poirier (1980) shows how, with appropriate identifying restrictions, these two latent variables can be estimated. Predicted values will range, as in the probit model, between 0 and 1, and for this reason we will sometimes call them probabilities or propensities.

Thus, we estimate the following system:

$$\left\{ \begin{array}{c} x_{it}^{d} = \alpha^{d} + \beta^{d} W_{it}^{d} + \varepsilon_{it}^{d} \\ x_{it}^{s} = \alpha^{s} + \beta^{s} W_{it}^{s} + \varepsilon_{it}^{s} \\ x_{it} = x_{it}^{d} * x_{it}^{s} \end{array} \right|$$

where in particular, the following is true about the probability to observe a new IMF program:

$$\Pr(x_{it} = 1) = \Pr(x_{it}^{d} = 1 \text{ and } x_{it}^{s} = 1) = \Phi(\alpha^{d} + \beta^{d} W_{it}^{d}, \quad \alpha^{d} + \beta^{d} W_{it}^{d}; \quad \rho)$$

with ρ being the correlation between the errors of the demand and supply equations.

To identify all parameters, an exclusion restriction must hold: each structural equation must exclude at least one exogenous regressor included in the other. In addition, we have to be more careful because of partial observability. In general, we need these exogenous regressors to take up a sufficient number of different values. As we use continuous variables, all our parameters can be estimated.[62]
It is evident that most of the determinants of the demand for IMF intervention also affect the IMF staff decision to give a loan. For instance, economic weaknesses make a country more needy, but the IMF will evaluate whether they are transitory or structural and will then support relatively stronger countries.[63] Internal politics could also affect the Fund propensity to lend money to a country. A mild autocracy, for instance, could actually reveal itself more trustworthy than a young and unstable democracy. Corruption, instead, is something that the IMF firmly rejects, and democracies might be able to tackle it in a more efficient way. Thus, a lot of variables that we look at will have an effect on both the demand and the supply side. To identify the structural equations, we therefore follow the literature, unifying the different streams of research.[64]

As it concerns the economic values, it is common to distinguish between GDP per capita and GDP. It is assumed, in fact, that local governments will be particularly concerned with the welfare of their electorate, measured in per capita terms, whereas the Fund will focus its attention on the general state of the economy, of which the GDP offers an exhaustive picture.

62 We will discuss the issue more thoroughly in the next chapter.
63 When an agreement is achieved, the country has to write a letter of intent showing its commitment to policies recommended by the IMF.
64 See, for instance, Stone (2008).

An analogous reasoning applies to the variables measuring external debt and current account deficit. The local government cares about their size relative to the country GDP, whereas the IMF is also worried about world stability in general and needs to monitor their absolute values.
Moreover, following Bal Gunduz (2009), we introduce global demand factors as determinants of a country's need for external funds. There is apparently no reason why these factors should influence the IMF decision (and indeed they are insignificant when tested for on the supply side).

These are all continuous variables that enable us to correctly perform the estimations. However, a rigorous reader might object that this distinction is only a trick that does not reflect how decisions are actually taken. To prevent this, and similar arguments that could apply to global demand factors, we carefully identify political variables that univocally determine either the demand or the supply.
In particular, controlling for the regime ruling the country, the number of years that the chief executive has been in office and those that remain until the next elections reflect the electoral cycle. Thus, a government who faces the risk of not being elected might try to improve its chances by negotiating the inflow of money to its country, money that he could use in popular programs (even if the IMF exerts a lot of pressure on countries to control their expenditures). If we account for the kind of regime, there is no obvious reason why the two variables should, instead, have an impact on the decision by the Fund. Indeed, the IMF might have a preference for a pluralist democracy, but this is accounted for by the other political controls.
Notice that *yrs_inoffice* takes up more than 30 different values, thus enabling us to identify the, at most, 21 parameters of our system of equations.
Similarly, we introduce FDI inflows as proxies for a country's welfare, and thus identify them as demand factors.

When considering supply, instead, we identify variables that measure various aspects of institutions. The presence of checks and balances, for instance, works like a sort of prerequisite, since the IMF conditions its loans on transparency and commitments to fight corruption. Analogously, press freedom, which is one aspect of the Freedom House status, represents a further check on governments. In addition, considering the infinite ambiguous literature on the relationship between economic performance and democracy, there is no reason why these factors should influence the demand side.
Other interesting factors we account for are:

- whether the executive has power over all relevant houses. In fact, controlling for the type of regime, this could be a stability signal, and should increase IMF propensity to lend money to the country;

- whether the executive can be described as left-, center-, or right-wing. Note that we can hypothesize that a left-wing executive would have higher public expenditure, which the IMF dislikes, but there is no reason to think that it would be more or less prone to search for IMF projects;

- whether the country is an oil producer.

Finally, following the literature, we add quota levels to the supply side (and note that this variable varies enough to solve the identification problem) and control for total IMF disbursements in a given year.

Table 6 summarizes the variables used in the two equations.[65]

Table 6. Variables Used in the Bivariate Probit Model

Demand Side	Supply Side
Current Account Balance over GDP	Current Account Balance
External Debt over GDP	External Debt
Change in Exchange Rate	Executive Orientation
FDI Inflows	Oil Producer Dummy
Aid from DAC Countries	Aid from DAC Countries
Cyclical Part of World GDP	Change in Non-Fuel Commodity Prices
GDP per capita	GDP
Change in GDP	Change in GDP
Years the Chief Executive has been in office	Military Executive Chief Dummy
Years to next election	Checks and Balances
	All Houses Controlled by Executive Dummy
	Freedom House Status
	IMF Quota
	Total IMF Disbursements per Year

A careful reader might notice the absence of a variable in IMF decisions, that is traditionally included. as we discussed in the Literature Review section: proximity with the US voting patterns at the UN. A

65 Note that in this is only a list of the regressors. These might then appear in lags in the equations. A further discussion is provided in the next chapter.

major drawback of using Bivariate Probit Models, in fact, is that being it a numerical approximation estimation procedure, it might indeed fail to achieve convergence during the likelihood maximization. This is exactly what happened, for instance, when we added to the supply side the similarity score with the USA in UN General Assembly Voting, but also when we added past participation in IMF programs. Furthermore, this limited the robustness checks and sensitivity analysis that we could carry on. To account for the shortcoming, however, we perform also Instrumental Variable Regressions that neither present problems in the calculations, nor require distributional form assumptions.

6.1.2. Second Step

For any model we could use in this second phase, the first issue to arise is the correction of the standard error estimates. In fact, estimating the effect of our predicted propensities is not without a cost. A common way to correct the standard errors is the bootstrap method. Indeed, bootstrap is adequate for sequential two-step m-estimator. Although any two-step problem could be written as a system, and the GMM estimators would be more appropriate, the variance computed with the GMM must be corrected in a complicated way, and it is therefore accepted (even recommended) to use bootstrap which is simpler and more straightforward.[66]

By drawing an infinite, at least theoretically, number of samples from the original population, the bootstrap method allows us to correct the standard errors of the coefficients on our estimated regressors.[67] Andrews and Buchinsky (1997) provide a rule of thumb for the minimum number of replications that ensure a given accuracy. Using the coefficient of excess kurtosis of the distribution of the parameter of interest, we find that to obtain estimates such that the percentage deviation from the ideal ones is less than 10% with 0.95 probability, we need to replicate the bootstrap procedure at least 500 times. To be on the safe side, however, and since we have two predicted values in the regressions, we iterate the procedure 10000 times. Also, we check that the standard error indeed converge, which did not seem to happen with 500 replications.

Now we are able to proceed to the second step estimations.

As it concerns diplomatic visits, a major issue with the data is that they are evidently lower censored at

66 See for instance Cameron, Trivedi (2005)

67 The best reference for boostrap is Efron, Tibshirani (1993).

zero. Indeed, there exist countries that for some periods did not have diplomatic relations with China at all, since they recognize Taiwan (an example is the Gambia)[68].

Thus, we use a tobit model beside the common OLS method, displayed to provide both comparisons with regressions with exports as the dependent variable and a benchmark for those who dislike the normality assumption that comes with the tobit.

Unfortunately, however, performing bootstrap and tobit is already very demanding on the data, and we are not able to include country or year fixed effects.

The controls are similar to those used to determine IMF funding, since visits here proxy for aid and loans. In addition, this time we control for past visits and similarity in voting patterns at the UN General Assembly between African countries and China.

However, we are able to introduce country fixed effects, and thus fully exploit our panel dataset, when analyzing the effect of our so-called credit crunch measures on exports to China. Indeed, this variable does not suffer from censoring problems.

A further word has to be spent regarding these exports regressions. In fact, we move away from the International Trade literature and do not use gravity equations. We still control for a country's mass using GDP per capita, but we are also interested in political and other economic determinants of economic relations with China, since here exports proxy for other economic flows. We, indeed, stress the fact that exports to China might result from asset-backed loans or from agreements involving Chinese infrastructural projects in exchange for natural resources.

Moreover, we are not interested in controlling for distance from China. Africa is a uniform region, and we are not comparing exports to China with exports towards other destinations.[69]

A drawback of using the fitted values for demand and supply in this second step is the difficulties we encounter to interpret the coefficients. What determines a country's decision to deal with China is exactly the joint effect of demand and supply, and this needs to be taken into account when discussing the results. A possible way to overcome this problem is to use fitted values from the first step analysis as instruments in the second stage. We will comment the results obtained using this procedure in the next chapter, and we will compare them with the other IV analysis we perform, obtaining surprisingly similar estimates.

68 http://www.fmprc.gov.cn/eng/wjb/zzjg/fzs/gjlb/2994/

69 This could be an interesting approach for further research, as we will argue in the concluding chapter.

6.2 Instrumental Variable Regressions

Finally, we run IV regressions to strengthen our findings.
As we already mentioned, the IV method has various merits in terms of comparability and interpretation of the results. Moreover, OLS methods allow us to control for a higher number of factors than the maximum likelihood methods we were using in the first step. So, we verify that the variables we could not include in the bivariate probit analysis are indeed not relevant as determinants of IMF programs.

The model resembles the one presented above, but now we are estimating a reduced form equation, in which demand and supply side factors appear together, as in the following:

$$y_{it} = \alpha + \beta^{d} W_{it}^{d} + \beta^{s} W_{it}^{s} + \gamma \mathbf{Z}_{it} + \varepsilon_{it}$$

where, as above, $\boldsymbol{W^{d}_{it}}$ is a vector of determinants of the demand side, $\boldsymbol{W^{s}_{it}}$ of the supply side, $\boldsymbol{Z_{it}}$ and is a vector of controls.

We exploit institutional variations in African countries to find two original instruments for IMF programs in the continent: the level of checks and balances on the executive, and a dummy indicating whether the executive controls all relevant houses in the Parliament.
In particular, we argue that Chinese claimed non-interference policy ensures the exogeneity of the instruments. In the previous chapters we have documented both how Chinese officers abstain from discussing the political situation of the countries they deal with, and how African politicians appreciate this neutrality.
Furthermore, we control for the regime in power in a country and other major institutional variables that determine a country's stability, and therefore the possibility to safely trade with it and invest on its territory without the risk of being expropriated. As a result the two instruments lose any explanatory power they might have on reciprocal diplomatic visits between China and African countries. In fact, the Chinese government does not want to affect another country political institutions system. Instead, it chooses its economic partners only on the basis of economic considerations.
The facts exposed in Chapter 1 support our hypothesis. Chinese partners are diversified, and they are mostly producers of natural resources. The correlation between the level of Chinese presence in a

country and democracy measures is close to 0, and changes sign according to the measure being used, providing further evidence of the absence of any link in the data between Chinese diplomatic decisions and the quality of institutions in African countries. In particular it is 0.05 between *presidential visit* and *checks* and -0.05 between *presidential visit* and *controlhouse.*

Some technical tests as well as theoretical considerations constitute further hints on the validity of our instruments. First of all, we observe a striking similarity between the results obtained with these IV regressions and those we got using bivariate probit fitted values as instruments. Secondly, the F-test confirms that they are strong. Finally, the Sargan overidentification test points in the direction of the exogeneity of the instruments, conditional on the exogeneity of the other, to Chinese diplomatic visits decisions.

7. Results

7.1 First Step: Bivariate Probit

Table 7. Bivariate Probit Estimation of IMF Loans Demand and Supply

Dep. Var:.	prg_demand	prg_supply	prg_demand	prg_supply	prg_demand	prg_supply	prg_demand	prg_supply	prg_demand	prg_supply	prg_demand	prg_supply
	1		1_cod		1_99		4		4_cod		4_99	
curraccount_gdp_lag2	0.87		0.54		1							
	(4.93)		(4.51)		(4.74)							
dl_xrate	0.02		0.02		0.02		0.02		0.02		0.02	
	(0.01)		(0.01)		(0.01)		(0.01)		(0.01)		(0.01)	
fdi_lag2	-6.03E-004		-5.91E-004		-5.93E-004		-6.01E-004		-5.90E-004		-5.93E-004	
	(3.94E-004)		(3.92E-004)		(3.87E-004)		(4.02E-004)		(3.99E-004)		(3.99E-004)	
yrs_inoffice	-0.07		-0.07		-0.07		-0.07		-0.07		-0.07	
	(0.05)		(0.05)		(0.05)		(0.05)		(0.05)		(0.05)	
yrs_nextelection	0.05						0.04					
	(0.20)						(0.20)					
yrsnext_cod			-0.01						-0.01			
			(0.11)						(0.11)			
yrsnext_99					0.05						-0.01	
					(0.20)						(0.05)	
aid_dac_lag2	0	0	0	0	0	0	0	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
cycle_worldgdpppp_lag2	0.15		0.14		0.16		0.14		0.13		0.13	
	(0.22)		(0.21)		(0.21)		(0.20)		(0.19)		(0.19)	
gdppc_lag2	0.0000145*		0.0000138*		0.0000141*		0.0000145*		0.0000138*		0.0000139*	
	(0.00)		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)	
gdpchange_lag2	0.05	0	0.05	0	0.04	0	0.05	0	0.05	0	0.05	0
	(0.07)	(0.03)	(0.07)	(0.04)	(0.07)	(0.04)	(0.07)	(0.03)	(0.07)	(0.04)	(0.07)	(0.04)
external_lag2		1.35e-4***		1.33e-4**		1.30e-4**		1.35e-4***		1.34e-4**		1.34e-4**
		(5.23E-005)		(5.43E-005)		(5.32E-005)		(5.24E-005)		(5.44E-005)		(5.43E-005)
executive_orientation		-0.27		-0.25		-0.27		-0.26		-0.25		-0.25
		(0.24)		(0.24)		(0.24)		(0.23)		(0.23)		(0.23)
gdpcur_lag2		0.0000534*		0.0000517*		0.0000523*		0.0000533*		0.0000518*		0.0000519*
		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)
quota		-0.00298**		-0.00293**		-0.00286**		-0.00298**		-0.00293**		-0.00293**
		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)
totaldisbursement		0.0279*		0.0278*		0.03		0.0281*		0.0279*		0.0279*
		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)		(0.00)
dl_nonfuelprice		0.01		0.01		0.01		0.01		0.01		0.01
		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)		(0.02)
military		-0.05	0.11	-0.08	0.19	-0.11		-0.05	0.1	-0.08	0.11	-0.08
		(0.39)	(0.89)	(0.42)	(0.91)	(0.42)		(0.39)	(0.87)	(0.42)	(0.87)	(0.42)
checks		0.449**		0.437**		0.454**		0.446**		0.436**		0.437**
		(0.20)		(0.20)		(0.20)		(0.20)		(0.20)		(0.20)
controlhouse		0.36		0.33		0.34		0.35		0.33		0.33
		(0.42)		(0.42)		(0.43)		(0.42)		(0.42)		(0.42)
Constant	-0.71	-1.5	-0.44	-1.48	-0.71	-1.48	-0.65	-1.52	-0.42	-1.49	-0.43	-1.49
	(1.57)	(0.95)	(1.30)	(0.95)	(1.53)	(0.96)	(1.49)	(0.94)	(1.29)	(0.94)	(1.23)	(0.94)
N	211	211	212	212	212	212	213	213	214	214	214	214
R-squared	.	.	.	.	.	.	.	.	.	.	.	.
AIC	209.4		211.5		212.05		207.43		209.52		209.48	
BIC	276.4336		281.9933		282.5356		271.2915		276.8382		276.8033	
goodness	0.2180		0.2170		0.2217		0.2160		0.2150		0.2103	
Likelihood ratio test chi squared	67.44		53.43		52.89		54.96		55.05		55.09	
Likelihood ratio test p-value	0		0		0		0		0		0	

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 7 presents the results for the first step estimates of the determinants of IMF programs demand and supply using a bivariate probit model.

In particular, Table 7 displays the results for our preferred specifications, the ones that we will use for the second step. Alternative specifications are reported in Table A2, in the Appendix.

To choose between the different specifications, we report Akaike and Bayes Information criteria, as well as the percentage of incorrectly predicted outcomes (that we call goodness measure in the tables). In all three cases, the lower the statistic, the better the specification.

Furthermore, we include a likelihood ratio test. Note, however, that because of the identification restrictions needed to perform a bivariate probit model, we cannot run a comparison model where in both equations we only have the constant. Therefore, we include a dummy variable (the most similar to a constant) in the supply equation. In particular, we choose *military*, which is one of the variables that we include in all specifications.

According to all these criteria, specifications 1 and 4 appear to be the best ones. In particular, specification 4 is more parsimonious. The information criteria and the likelihood ratio test disagree, and therefore we will present results using estimates from both specifications. When we have to choose one, however, we will still prefer specification 1, since we do not feel that we should completely ignore current account balance as a determinant of the demand for IMF funds, even if it is insignificant.

We report estimations both with the original variable *yrs_nextelection* and with the recoded variable *yrsnext_cod*. It is interesting to note that estimates only change very little, because, as we already noted, the number of observations in these specifications does not increase, due to other variables' missing values.

Finally, for robustness, we also present the results obtained using the recoded variable *yrsnext_99*. Again, the results do not change significantly.

In the second step, we will present results using predicted values from all these specifications. Our comments, however, will focus on the ones obtained using *yrsnext_cod* which we think is the most correct one, as we already discussed in the Data Section.

Many of the variables present in the specifications are 2-period-lags. This both reflects negotiations' length[70] and addresses technical issues. Indeed, we use lags to avoid reverse causality problems and we

70 For instance, in 1999 the IMF introduced Poverty Reduction Strategy Papers for LICs. "A PRSP describes the macroeconomic, structural, and social policies and programs that a country will pursue over several years to promote

find that second lags have better explanatory power than first lags (we do not include these results in our work for the sake of space). Furthermore, most of the programs start after a long process, involving IMF staff assessment of the country's performance, as well as official commitments to IMF-backed policies via a Letter of Intent. Usually this process, closely monitored by IMF staff missions also at the redaction stage, lasts from a minimum of 1 to a maximum of three years. The Fund needs this time, and these instruments, to design the conditions, regarding economic policy as well as transparency, that it will attach to the programs. Things are a little bit different from emergency relief measures, as the name itself suggests. However, as we showed above, these constitute only a small part of the dataset.[71]

Tables 7 and A2 show first of all how difficult it is to assess the determinants of the demand side. None of the variables is significant, except for GDP per capita, which comes with the apparently wrong sign. In fact, other things equal, GDP per capita seems to have a positive effect on the propensity of a country to apply for IMF programs.

In particular, it is striking how economic variables fail to explain IMF programs, probably because the same indicator can sometimes be a symptom of an illness and call for immediate action, while some other times it can be a physiological state that can be ignored. Bird (2007) provides an enlightening example of how current account deficits, for instance, might be sustainable or not in different situations, thus respectively leading to a stable situation in which the country continues to borrow on international capital markets or to a current account crisis that require the urgent intervention of the international financial community.

A plausible explanation, is that African countries suffer from a self-selection. Countries that are too poor do not even have the resources to enact the reforms promoted by the Fund, or to implement the monitoring of the economy required by IMF staff. Therefore, they do not even bother to waste time and scarce resources to fly to Washington.

In conclusion, why a government might decide to apply for programs is very ambiguous, and neither economic not political variables seem to do a good job in explaining the decision. Expectations of negotiations' success might play an important role as well, leading to recursive equations which suffer

growth and reduce poverty, as well as external financing needs and the associated sources of financing. They are prepared by governments in low-income countries through a participatory process involving domestic stakeholders and external development partners, including the IMF and the World Bank. [...] PRSPs help guide Fund and Bank concessional lending as well as debt relief". In other words, IMF programs in LICs are prepared through a precise path aimed at specifying all the economic and political variables involved in the process. It is with instruments like PRSPs and Letter of Intents that all the conditions attached to the programs are tailored for the borrowing country.

71 See IMF Factsheets for a more thorough explanation of the process of starting an IMF program.

from endogeneity.

The supply side, instead, presents much clearer patterns, which explains also why it is so difficult to find instruments for the demand side.
The IMF is more prone to start programs in countries that, other things equal, have a smaller external debt and a higher GDP. This happens because, despite the peculiarity of programs designed for Low Income Countries, the IMF still has to ensure the repayment of the disbursements plus the arrears.
Interestingly, the previous findings that countries with a higher quota should weight more in IMF decisions and thus receive more funds, does not apply to Africa. Quota size is negatively, and significantly at the 5% level, correlated with IMF propensity to lend. This is due to the presence in Africa of very big countries (which pay higher quotas) that for various reasons do not participate in IMF programs, as can be seen in Figure 10. On the one hand, South Africa and the Maghreb countries are quite rich and do not need IMF support. On the other hand, countries like Angola or DRC have controversial political situations which prevent the IMF from starting programs there.
Moreover, years in which the IMF increases total disbursements see disbursements to African countries rise, showing that Africa is a priority for the Fund.

Finally, we see that the political variables come with the right signs, which is interesting when we compare these results with the first stage of the IV regressions. Here the only significant variable at the 5% level is *checks*, which is positive and quite big (the marginal effect at the mean of an increase in checks and balances on the probability of the IMF lending to a country is 0.16, which is the highest of all variables). Furthermore, if the executive controls all relevant houses, the IMF is more prone to start a program in the country, which is an evidence of it being concerned with government stability for reform implementation. However, the coefficient on *controlhouse* is not significant.

7.2 Tobit Estimations

Table 8. Tobit Estimation of Diplomatic Visits

Dep. Var:.	presidential visit					
	(1)	(2)	(3)	(4)	(5)	(6)
demand1_lag	1.08	1.53	1.21	1.4		
	(1.16)	(0.97)	(1.16)	(0.93)		
supply1_lag	-2.16	-2.12	-2.04	-2.12		
	(1.72)	(1.47)	(1.72)	(1.42)		
demand4_lag					1.46	1.725*
					(0.94)	(0.94)
supply4_lag					-2.13	-2.17
					(1.45)	(1.44)
sscore_ch_lag	-3.27	-2.33	-2.01	-2.69	-2.76	-2.66
	(2.60)	(2.30)	(2.70)	(2.26)	(2.25)	(2.33)
fdi_lag	1.77E-004		1.74E-004			
	(1.51E-004)		(1.58E-004)			
curraccount_gdp_lag	-8.14	-12.51	-7.19	-12.83	-12.84	-11.48
	(17.70)	(12.80)	(18.20)	(13.10)	(12.90)	(13.10)
d_reserve	0	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
d_tot	3.790*		3.479*			
	(2.12)		(2.01)			
external_gdp_lag	-6.31E-004		-6.87E-004			
	(2.07E-003)		(2.03E-003)			
presidential_visit_lag	0.43	0.14	0.44	0.15	0.15	0.16
	(0.28)	(0.27)	(0.28)	(0.27)	(0.26)	(0.26)
program_lag2	-1.408**	-1.313***	-1.393**	-1.218***	-1.215***	-1.353***
	(0.71)	(0.43)	(0.62)	(0.42)	(0.42)	(0.42)
cycle_worldgdpcur_lag	0.07	-0.01		0	0	
	(0.08)	(0.04)		(0.04)	(0.04)	
controlhouse	-0.31	-0.24	-0.22	-0.25	-0.27	-0.31
	(0.61)	(0.60)	(0.58)	(0.61)	(0.60)	(0.60)
status	0.09	0.15	0.15	0.16	0.15	0.16
	(0.36)	(0.30)	(0.35)	(0.30)	(0.30)	(0.29)
yrs_inoffice	-0.01		-0.01			
	(0.04)		(0.04)			
yrsnext_cod	-0.18	-0.04	-0.14	-0.04	-0.05	-0.04
	(0.13)	(0.11)	(0.12)	(0.11)	(0.11)	(0.11)
gdppc_lag	0	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
aid_dac_lag		0		0	0	0
		(0.00)		(0.00)	(0.00)	(0.00)
military		-1.63		-1.73	-1.72	-1.63
		(1.20)		(1.16)	(1.13)	(1.23)
checks		-0.26		-0.25	-0.27	-0.28
		(0.24)		(0.25)	(0.24)	(0.25)
cycle_worldgdpppp_lag			-0.18			-0.1
			(0.21)			(0.12)
gdpcur_lag		0				0
		(0.00)				(0.00)
Constant	0.97	0.83	0.21	0.93	0.97	0.96
	(1.46)	(1.57)	(1.48)	(1.58)	(1.57)	(1.56)
N	135	156	135	156	157	157
R-squared	.	.	.	.	.	.
Test dem=sup=0 p-value	0.05	0.0033	0.05	0.0041	0.0035	0.0018

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 8 presents tobit estimations of the second step regressions: diplomatic visits on demand and supply predicted values. In particular Table 8 displays the results for the specifications using the recoded variable *yrsnext_cod*. Results using alternative specifications are reported in the Appendix, Tables A3 to A5.

We regress our dependent variable on first lags of the predicted values to avoid reverse causality issues, for instance if countries that have more diplomatic exchanges with China are crowded out from IMF financing.

At a first glance the results do not seem appealing: only very few variables are significant, and the number of observations considered in the specifications is very small (around 150) due to missing values. Looking at the countries included in the sample, we note that quite a few are missing: DRC, Equatorial Guinea, Guinea, Sudan and Zimbabwe are the most relevant absents. Being those also some of the countries that have more contacts with China and controversial relations with the IMF, we expect the effect of participation in IMF programs on relations with China to be underestimated in our analysis.
However, we still find an important effect of IMF demand and supply propensities, even if significant at the 10% level only in one specification (see the last column of each table, which regresses on predicted values from first-stage specification 4, and includes the widest set of political controls). However, we find that demand and supply propensities are jointly significant and in the most complete specifications (column 4 and 6 of Table 8) they are significant at the 1% level.
It is important to stress that we are interested in the joint effect of demand and supply side. Countries that need more external funds (higher demand propensity) and are simultaneously less likely to receive that funds from the IMF (lower supply propensity) are more likely to bolster diplomatic relations with China, increasing the number of presidential visits.

This result is reinforced by the finding that, other things equal, a country that has an IMF program in place two years before the period considered has around 1.3 less reciprocal visits with China, i.e. 2.5 standard deviations. And this finding is significant at the 1% level. Bird (2007) discusses how IMF programs nourish recidivism, thus breaking per se some of the conditions imposed by the Fund that should lead to countries becoming economically independent. African countries seem indeed to stuck

with whom gives them a hand.

The only other variable that has a significant effect on the number of visits is lagged change in the terms of trade. Surprisingly, at least at first sight, an increase in the terms of trade leads to an increase in the number of visits: stronger African countries have more diplomatic contacts with China, which as we know, is looking for cheap resources. We must not forget, however, that China is not giving out aid or conceding loans and grants without guarantees. Once we take into account a country's need for money including demand propensity in the regression, it will be stronger countries, who have higher bargaining power, those who manage to get Chinese funds. Finally, a result that is interesting for our IV analysis is that neither *checks* nor *controlhouse* are significant. This hints to the exogeneity of the variables that we will use as instruments.

7.3 OLS and Fixed Effects Estimations

Table 9. OLS Estimation of Diplomatic Visits

Dep. Var:.	presidential visit					
	(1)	(2)	(3)	(4)	(5)	(6)
demand1_lag	0.44	0.549*	0.44	0.52	0.588*	0.593*
	(0.36)	(0.31)	(0.35)	(0.32)	(0.33)	(0.32)
supply1_lag	-0.7	-0.49	-0.7	-0.43	-0.44	-0.49
	(0.48)	(0.38)	(0.47)	(0.37)	(0.37)	(0.38)
sscore_ch_lag	-0.41	-0.46	-0.41	-0.39	-0.31	-0.33
	(0.79)	(0.68)	(0.78)	(0.70)	(0.71)	(0.69)
fdi_lag	9.40E-005		9.40E-005			
	(6.77E-005)		(6.67E-005)			
curraccount_gdp_lag	-0.9	-1.79	-0.9	-1.84	-1.46	-1.61
	(4.02)	(3.34)	(4.01)	(3.24)	(3.28)	(3.34)
d_reserve	0	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
d_tot	0.910**		0.910**			
	(0.45)		(0.45)			
external_gdp_lag	0		0			
	(1.90E-004)		(1.92E-004)			
presidential_visit_lag	0.17	0.12	0.17	0.1	0.1	0.11
	(0.11)	(0.10)	(0.11)	(0.10)	(0.10)	(0.10)
program_lag2	-0.396***	-0.368***	-0.396***	-0.334***	-0.368***	-0.394***
	(0.11)	(0.11)	(0.12)	(0.12)	(0.12)	(0.11)
cycle_worldgdpcur_lag	0.01	0	0.01	0		0
	(0.02)	(0.01)	(0.02)	(0.01)		(0.01)
controlhouse	-0.17	-0.05	-0.17	-0.14	-0.14	-0.04
	(0.20)	(0.18)	(0.20)	(0.20)	(0.20)	(0.18)
status	-0.06	0.05	-0.06	0	0	0.04
	(0.11)	(0.09)	(0.11)	(0.10)	(0.10)	(0.09)
yrs_inoffice	0		0			
	(0.01)		(0.01)			
yrsnext_cod	-0.05	-0.03	-0.05	-0.02	-0.03	-0.03
	(0.04)	(0.03)	(0.04)	(0.03)	(0.03)	(0.03)
gdppc_lag	0	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
military		-0.328**		-0.401**	-0.364**	-0.291*
		(0.16)		(0.17)	(0.17)	(0.16)
checks				-0.08	-0.08	
				(0.08)	(0.08)	
aid_dac_lag		0		0	0	0
		(0.00)		(0.00)	(0.00)	(0.00)
cy_worldgdpppp_lag					-0.02	
					(0.04)	
gdpcur_lag					0	0
					(0.00)	(0.00)
Constant	0.851**	0.52	0.851**	0.853*	0.82	0.48
	(0.41)	(0.36)	(0.41)	(0.51)	(0.51)	(0.36)
N	135	157	135	156	156	157
R-squared	0.25	0.18	0.25	0.18	0.19	0.18
Test dem=sup=0 p-value	0.0037	0.0005	0.0034	0.0016	0.0013	0.0004

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 9 displays the OLS estimation results for the same problem, using the results from the first step specification 1_cod. Analogous findings are reported in Table A6 using the results from the first step specification 4_cod.
In general, the results are similar to the ones found using the tobit model: demand propensity now is significant at the 10% level in most specifications, and the two predicted values are always jointly significant at the 1% level.
Only the size of the coefficients changes. In the OLS model they are smaller (demand and supply propensity effect range around 1 standard deviation of presidential visits while they were respectively 3 and 4 with the tobit model, whereas the incidence of lagged participation in a program is reduced to 0.75 standard deviations).

Finally, we note that in the OLS model a country with a military executive chief has around 0.6 standard deviations less reciprocal visits with China, and this result is significant at the 5% level. In countries with military dictatorships business is riskier, due to the risk of coups as well as the risk of having to pay arbitrary bribes to officers at the intermediate levels. Thus, also China, who claims not to interfere in other countries political debate, seems to be actually concerned about regimes in power in the countries with which it has economic and diplomatic relations. And this goes in the direction pointed out by Meyersson et al. (2008).

In addition, OLS allows us to have a measure of fit (R-squared and adjusted R-squared, with the latter being around 0.09 less than the former). Both are small numbers, and suggest that there are other determinants of diplomatic visits between China and African countries. However, they go beyond the scope of our research.

We leave it to the reader to decide which model to prefer. For the evident censoring problems, we would choose the tobit procedure. However, to be on the safe side, we consider OLS results as a lower bound for the effect of participation in IMF programs on African countries' diplomatic relations with China.

In addition, we use OLS also to assess the impact of participation in IMF programs on African countries' exports to China, displayed in Table 10. Thus, we have comparable, and this provides further

insights on the issue.

Once again, most of the variables are not significant. Even lagged IMF programs are not. Our variables of interest, however, do maintain joint significance at the 10% level, and IMF propensity to start programs is significant by itself at the 5% level, with an effect of 6 standard deviations (demand side propensity, instead has an impact of 1 standard deviation).

The variable that is most significant is the lag of exports itself (the variable displays an autocorrelation of 0.9). This, together with the use of fixed effects, might explain the increase in the R-squared (within groups R-squared being around 0.8, higher than between groups R-squared, which is around 0.55).

As usual, Table 10 displays the results using first-step specification 1_cod. Table A7 in Appendix provides an analogous analysis using first-step specification 4_cod.

Table 10. Fixed Effects Estimation of Exports to China

Dep. Var:.	exportchina (1)	exportchina (2)	exportchina (3)	exportchina (4)	exportchina (5)
demand_lag	0.6	0.67	0.84	0.85	0.61
	(1.22)	(1.20)	(1.37)	(1.39)	(1.20)
supply_lag	-2.938**	-2.956**	-3.065**	-3.049**	-2.986**
	(1.32)	(1.35)	(1.33)	(1.36)	(1.35)
exportchina_lag	0.908***	0.906***	0.918***	0.916***	0.911***
	(0.20)	(0.20)	(0.21)	(0.21)	(0.21)
aid_dac_lag	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
external_lag	0	0	0	0	0
	(6.05E-005)	(5.71E-005)	(6.24E-005)	(6.19E-005)	(5.97E-005)
sscore_ch_lag	-1.73	-1.9	-1.06	-1.1	-1.93
	(1.59)	(1.64)	(1.43)	(1.43)	(1.61)
cycle_worldtrade_lag	0.02	0.02	0.01	0.02	0
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
yrsnext_cod	0.02	0.02	0.02	0.02	0.02
	(0.07)	(0.07)	(0.07)	(0.08)	(0.07)
yrs_inoffice	0.02	0.02	0.03	0.03	0.02
	(0.04)	(0.04)	(0.06)	(0.06)	(0.04)
controlhouse	1.82	1.86	1.96	1.94	1.84
	(1.94)	(1.90)	(1.96)	(1.99)	(1.93)
maj_margin	-6.08	-6.06	-7.09	-7.09	-6.19
	(6.64)	(6.55)	(7.09)	(7.19)	(6.61)
military	1	0.97	1.03	1.02	1.04
	(1.73)	(1.73)	(1.70)	(1.74)	(1.64)
checks	-0.2	-0.18	-0.3	-0.31	-0.18
	(0.27)	(0.26)	(0.31)	(0.32)	(0.27)
d_xrate	0		0	0	0
	(0.01)		(0.01)	(0.01)	(0.01)
d_nonfuelprice	0.03	0.03	0.03	0.03	0.03
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
gdppc_lag	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
prg_yrlag2	0.07	0.09	0.16	0.17	0.07
	(0.27)	(0.27)	(0.28)	(0.28)	(0.27)
oil_producer			-1.28	-1.24	
			(1.17)	(1.20)	
cycle_worldgdpppp_lag					0.11
					(0.10)
status				-0.11	
				(0.38)	
Constant	3.32	3.33	4.35	4.61	3.41
	(3.32)	(3.31)	(3.80)	(4.04)	(3.32)
N	148	149	148	148	148
Number of alfa	24	24	24	24	24
R-squared	0.8	0.8	0.8	0.8	0.8
Test dem=sup=0 p-value	0.08	0.08	0.07	0.08	0.08

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

7.4 Predicted values as instruments

It is important to stress that we are not in front of a "forbidden regression" case.[72] Indeed, we are not performing a two-stage regression in which the first stage in nonlinear. Instead, we are estimating two unrelated regressions, and using the fitted values from the first one as an estimate for latent regressors in the second one. Furthermore, we argue that the latent propensity scores for demand and supply of IMF programs are completely exogenous in the second regression when we already control for lagged diplomatic visits. Thus, we do not see any risk of endogeneity in using nonlinear fitted values.
Instead, our second step estimates could suffer from classic error-in-variables problems that could lead to underestimation of the coefficients of interest. However, bootstrap techniques do a good job in correcting for this, and we consider estimates presented in the previous sections reliable.

Nonetheless, to prevent critics and objections based on the "forbidden regression" argument, and to present further supporting evidence for our thesis, in Table 11 we present instrumental variables regressions of presidential visits on IMF program onsets instrumented with the predicted value from our bivariate probit model.[73]
Practically, we take the product of our predicted demand and supply propensities and use it as an instrument for the regressor of interest which is *program_new*. We call this new variable *imfprogram1cod* when it is the product of *demand1_cod* and *supply1_cod* (estimated using the bivariate probit model with specification 1_cod).
Table 12 presents first-stage regressions for the specifications included in Table 11.
We followed an analogous procedure for the results obtained using specification 4_cod, and we report IV and first-stage regressions in the Appendix, Table A8 and A9 respectively.
Starting a new program with the IMF decreases the number of visits with China and African countries by around one standard deviation. Countries that see their need for funds satisfied by the IMF exchange half a visit less with China. The results are significant at the 10% level and are similar to the ones from the tobit model. No economic variable is significant. Moreover, the effect of IMF programs as substitutes for relations with China is persistent, and past participation in Fund's program has a further negative effect on reciprocal visits of half standard deviations.
In one specification, past visits significantly and positively influence the number of current visits (total

72 See Angrist and Pischke (2008), or Woolridge (2002) for a definition of forbidden regressions.
73 This is one solution proposed in Angrist and Pischke (2008) to avoid forbidden regressions.

visits, instead, displayed in Table A10 are more persistent). A military regime, instead, has a negative impact on reciprocal presidential visits between China and African countries, but this result is significant only in one case.
When we consider the total number of diplomatic visits, the results on the coefficient of interest do not change: new IMF programs decrease the number of total visits by one standard deviation, i.e. one visit per year.
FDI and global demand have a positive and significant effect on total diplomatic visits, too. However, their impact is much smaller than the one caused by the onset of an IMF program.

First-stage regressions display the usual pattern in which none of the controls is significant. Note that this time, however, we are not trying to find determinants of IMF programs' onset. We display first-stage regressions only to show that t-statistics (the ratio of coefficients to standard errors) are all around 5. In the case of a single instrument, the F-statistic to determine whether the instrument is strong is just the square of the relative t-statistic. Therefore, we can conclude that the instrument is indeed strong.
Nothing can be said, instead, on the exogeneity of the instrument. We cannot perform a Sargan overidentification test, because we only have one instrument.
There is a risk of endogeneity when regressing Chinese presence in Africa on IMF presence. Omitted variables determining both can play a role, but also reverse causality. Using fitted values, predicted with a wide number of determinants, could address the issue.
Moreover, in the following section we instrument participation in IMF programs with two new exogenous and strong instruments. The similarities in the results (we find that participation in IMF programs reduces diplomatic visits with China by approximately one standard deviation) provides further evidence of the goodness of our analysis.

Table 11. IV of Diplomatic Visits using Predicted Values as Instruments for IMF programs

Dep. Var:.	presidential visit								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
prg_new_lag	-0.460*	-0.527*	-0.501*	-0.504*	-0.510*	-0.511*	-0.522*	-0.523*	-0.527*
	(0.26)	(0.27)	(0.29)	(0.29)	(0.26)	(0.26)	(0.28)	(0.27)	(0.27)
sscore_ch_lag	0.3	0.08	0.05	0.02	0.08	-0.35	0.08	-0.06	0.08
	(0.93)	(0.97)	(0.97)	(1.00)	(0.97)	(0.89)	(0.97)	(0.99)	(0.98)
fdi_lag	7.15E-005	5.95E-005	7.31E-005	6.59E-005	5.98E-005	6.16E-005	5.74E-005	6.51E-005	5.96E-005
	(7.15E-005)	(7.28E-005)	(8.52E-005)	(7.59E-005)	(7.32E-005)	(7.40E-005)	(7.61E-005)	(7.36E-005)	(7.32E-005)
curraccount_gdp_lag	-1.47	-3.88	-3.78	-3.79	-4.15	-4.67	-3.81	-3.8	-3.88
	(3.86)	(4.18)	(4.17)	(4.18)	(4.01)	(3.86)	(4.27)	(4.20)	(4.19)
d_reserve	0	0	0	0	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
d_tot	0.6	0.64	0.62	0.65	0.64	0.73	0.63	0.65	0.64
	(0.47)	(0.49)	(0.48)	(0.50)	(0.48)	(0.50)	(0.49)	(0.50)	(0.49)
external_gdp_lag	-2.27E-004	-2.06E-004	-2.03E-004	-2.05E-004	-2.13E-004	-1.73E-004	-2.15E-004	-1.95E-004	-2.06E-004
	(1.60E-004)	(1.55E-004)	(1.53E-004)	(1.53E-004)	(1.53E-004)	(1.50E-004)	(1.66E-004)	(1.49E-004)	(1.55E-004)
presidential_visit_lag	0.188*	0.16	0.17	0.17	0.16	0.15	0.16	0.16	0.16
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.12)	(0.11)	(0.11)
program_lag2	-0.227*	-0.257**	-0.251**	-0.252**	-0.261**	-0.265**	-0.252**	-0.259**	-0.257**
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.13)
cycle_worldgdpppp_lag	-0.05	-0.03	-0.03	-0.03	-0.03		-0.03	-0.11	-0.03
	(0.07)	(0.08)	(0.08)	(0.08)	(0.08)		(0.08)	(0.11)	(0.08)
controlhouse	-0.13	-0.08	-0.08	-0.09	-0.07	-0.1	-0.08	-0.1	-0.08
	(0.21)	(0.22)	(0.22)	(0.23)	(0.22)	(0.23)	(0.22)	(0.23)	(0.23)
status	0	0.01	0.01	0.01	0	-0.01	0	0.01	0.01
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
yrs_inoffice	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
yrsnext_cod	-0.03	-0.02	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.02
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
gdppc_lag	0	0	0	0	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
military		-0.25	-0.25	-0.26	-0.24	-0.311*	-0.25	-0.26	-0.25
		(0.18)	(0.18)	(0.18)	(0.18)	(0.17)	(0.18)	(0.17)	(0.18)
aid_dac_lag			0						
			(0.00)						
d_xrate									0
									(0.00)
cycle_worldtrade_lag								0.02	
								(0.02)	
oil_producer							0.02		
							(0.18)		
cycle_worldgdpcur_lag						0.03			
						(0.02)			
gdpchange_lag					0.01				
					(0.02)				
gdpcur_lag				0					
				(0.00)					
Constant	0.654*	0.702*	0.706*	0.715*	0.671*	0.894**	0.706*	0.771*	0.704*
	(0.37)	(0.38)	(0.38)	(0.39)	(0.38)	(0.37)	(0.39)	(0.39)	(0.39)
N	135	135	135	135	135	135	135	135	135
R-squared	0.06	0.04	0.05	0.05	0.05	0.05	0.04	0.05	0.04

Robust standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 12. First Stage Regressions

Dep. Var:.	prg_new_lag (1)	prg_new_lag (2)	prg_new_lag (3)	prg_new_lag (4)	prg_new_lag (5)	prg_new_lag (6)	prg_new_lag (7)	prg_new_lag (8)	prg_new_lag (9)
imfprogram1cod_lag	1.226***	1.238***	1.170***	1.197***	1.271***	1.252***	1.228***	1.242***	1.238***
	(0.22)	(0.22)	(0.23)	(0.24)	(0.21)	(0.21)	(0.23)	(0.21)	(0.22)
sscore_ch_lag	0.59	0.63	0.66	0.69	0.64	0.31	0.63	0.51	0.64
	(0.43)	(0.48)	(0.47)	(0.49)	(0.47)	(0.44)	(0.48)	(0.47)	(0.48)
fdi_lag	0	0	0	0	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
curraccount_gdp_lag	-2.48	-2.16	-2.26	-2.22	-2.64	-2.77	-2.26	-2.1	-2.16
	(1.82)	(2.20)	(2.20)	(2.16)	(2.10)	(2.04)	(2.26)	(2.18)	(2.20)
d_reserve	0	0	0	0	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
d_tot	0.02	0.01	0.05	-0.01	0.01	0.08	0.03	0.03	0.02
	(0.30)	(0.30)	(0.30)	(0.30)	(0.29)	(0.30)	(0.30)	(0.29)	(0.29)
external_gdp_lag	0	0	0	0	0	0	0	0	0
	(1.43E-004)	(1.47E-004)	(1.48E-004)	(1.47E-004)	(1.46E-004)	(1.39E-004)	(1.52E-004)	(1.38E-004)	(1.48E-004)
presidential_visit_lag	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	0	0	-0.01
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)	(0.04)
program_lag2	-0.05	-0.05	-0.06	-0.06	-0.06	-0.06	-0.06	-0.05	-0.05
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
cycle_worldgdpppp_lag	-0.02	-0.02	-0.03	-0.02	-0.02		-0.02	-0.08	-0.02
	(0.03)	(0.04)	(0.04)	(0.04)	(0.04)		(0.04)	(0.06)	(0.04)
controlhouse	0.09	0.08	0.08	0.09	0.09	0.07	0.08	0.07	0.08
	(0.12)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)
status	-0.07	-0.08	-0.07	-0.08	-0.08	-0.08	-0.07	-0.07	-0.08
	(0.06)	(0.06)	(0.06)	(0.06)	(0.05)	(0.06)	(0.06)	(0.06)	(0.06)
yrs_inoffice	0	0	0	0	0	0	0	0	0
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
yrsnext_cod	0.02	0.02	0.02	0.02	0.02	0.01	0.02	0.01	0.02
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
gdppc_lag	0	0	0	0	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
military		0.04	0.03	0.05	0.05	-0.01	0.03	0.02	0.04
		(0.13)	(0.13)	(0.13)	(0.13)	(0.12)	(0.13)	(0.13)	(0.13)
aid_dac_lag			0						
			(0.00)						
d_xrate									0
									(0.00)
cycle_worldtrade_lag								0.02	
								(0.01)	
oil_producer							-0.04		
							(0.11)		
cycle_worldgdpcur_lag						0.02			
						(0.02)			
gdpchange_lag					0.01				
					(0.01)				
gdpcur_lag				0					
				(0.00)					
Constant	-0.17	-0.18	-0.18	-0.19	-0.23	-0.03	-0.19	-0.12	-0.19
	(0.23)	(0.23)	(0.23)	(0.23)	(0.24)	(0.22)	(0.23)	(0.23)	(0.24)
N	135	135	135	135	135	135	135	135	135
R-squared	0.3257	0.3263	0.3366	0.3297	0.3368	0.3403	0.3272	0.3373	0.3264

Robust standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

7.5 IV Estimations

Finally, after having experimented with innovative models, we return to the safer harbor of IV estimation methods. Note that the number of observations increases, now that we do not use bivariate probit. However, a closer inspection of the sample reveals that the countries that were excluded in the previous analysis are still missing: the increase in the number of observations is only due to the availability of more periods for countries that were already present.
Table 13 presents these estimations, while Table 14 displays first stage regressions.

7.5.1. First stage

As we already discussed, IV does not allow us to distinguish between demand and supply side effects. On the contrary, as it is evident also from Table 14, we must rely mostly on supply side factors. Our two instruments *checks* and *controlhouse,* which are strong accordingly to the F-test, act both on the supply side, as we already mentioned. Their effect on the participation in total and monetary programs per year is quite large: countries in which the government controls all relevant houses are around 0.5 (1 standard deviation) more likely to participate in programs, and increasing by one the level of checks and balances increases this probability of program participation by around 0.25. (Note that we use a linear probability model, here). Stability plays a role also when measured with the share of parliamentary seats controlled by the executive.
Aid from DAC countries has a positive effect on the number of programs, too. This is, again, a supply side effect[74]: countries receive more aid because they have better relations with DAC countries, which are more prone to vote in favor of an IMF program at the IMF board.

In addition, we confirm some of the previous findings: first of all, economic variables that the IMF explicitly targets in its statements do not have any effect.[75] Furthermore, we find again a negative effect of quota size, as well as a positive effect of GDP per capita on programs' participation. What happens is that past periods of low GDP and GDP per capita increase the probability that a program will take place in a country (they affect the country's need for funds). However, if a country's current level of GDP per

74 See for instance, Stone (2004).
75 This was already underlined in Stone (2004).

capita is higher, it will be more likely to start a program, because of credibility in reforms implementation.
Finally, we find that countries with higher levels of FDI tend to participate less in programs, though the effect is quite small. This could be because FDI acts as a substitute for IMF programs.

Of high importance in relation with the previous literature, we notice that some instruments that have been used in other works do not appear to be significant in our case.
Similarity in voting patterns with the US and the UN General Assembly, for instance, is completely insignificant. This might have to do with our sample which starts ad the end of Cold War, when the world became less polarized.

On the demand side, *yrs_inoffice* is the only significant variable. Longer governments are less likely to have IMF programs (one more year in power decreases the probability by 1 percentage point). Longer governments have other means of competing for votes (or they might not need to compete for votes in monarchies and dictatorships), since they are more entrenched in their country.
One further interesting result is that leftist governments are more likely to get IMF funds, despite the fact that leftist governments tend to have higher public expenditures. On the one hand, this could be an explanation on the demand side. On the other hand, the reason might lie in the difference in political categories used in the West with regard to those that apply to African countries. The effect is quite big, too, and significant at the 5% level: a shift from a right-wing government (labeled with 1) to a leftist executive (labeled with 2) increases the likelihood of having an IMF program in place by 20 percentage points.
Finally, it is striking how higher trade with China decreases the likelihood of having an IMF program, though the effect is small. The lag of trade with China has a positive impact, instead, maybe working as another proxy for the level of economic activity.

7.5.2. Second Stage

In our second stage IV estimates we find a significant (at the 10% level) and important effect of what we called credit crunch by IFIs. Having an IMF program in place, both monetary and non-monetary,

decreases the number of presidential and total visits by 0.7 standard deviations (almost half visit). This in turns implies that countries that do not have access to IMF funds, or that refuse IMF conditions, increase their interactions with China.
Moreover, the coefficients on IMF program participation are very similar to the ones found in the previous section, when we instrumented programs' onset with the predicted values from the bivariate probit model. Once again, even forgetting the bigger impact we found in the tobit regressions, we find an important effect that can act as a lower bound for our previous estimates.

Interestingly, in determining reciprocal diplomatic visits, the other variables present a pattern similar to the one shown in determining IMF programs: the longer the chief executive has been in office, the less diplomatic visits, the lower past GDP, but the higher current GDP per capita, the more relations with China. This shows how economic and foreign affairs decisions in China are not taken only as a result of political planning, as some in the West fear. On the contrary, China acts as a rational agent and lender. This has to be considered when analyzing the result that leftist government have more relations with China: it was the case also for IMF program.
This works also on the demand side, apparently: FDI presents the same substitution effect it had with Fund programs, even if less strong and less permanent.
Surprisingly, also trade with China shows the same sign it had in the first stage. Higher past trade increases current visits, since countries that have strong economic ties tend to strengthen and deepen those ties also through political means. However, the higher current trade values, the less visits. This reflects a probably non-monotonic relationship, since Chinese officers might be interested to start relations with new countries, just like governments of African countries not already bound with China want to initiate a relation that has already shown to be valuable elsewhere.

What is new in this second stage is that recently elected governments show more diplomatic exchanges with China, probably because the Chinese government and the private sector seek partners that will maintain power for enough time that their investments will not be lost in case the executive is changed after new elections. Analogously, countries in which the government has a higher majority in the parliament, exchange more visits with China, once again showing that international partners value stability when trading with African countries.

Finally, global demand and economic variables that were not significant in the first stage here play a sometimes big role. For instance, when world GDP increases, visits with China increase. This, as well as the negative effect of changes in the exchange rate of African currencies, reflects the fact that now the African counterpart is a country that reacts to global economic factors. When the world economy expanded, in the past years, China grew even more, and thus its thirst for resources and its funds availability increased. Similarly, when the exchange rates fell in African countries, it was more convenient for China to trade with those countries.
When global trade increases, instead, African countries gain bargaining power in that they have a wider range of alternative trading partners, and therefore they are less appetizing for Chinese interests.

It is important to conclude our discussion of the determinants of Chinese foreign affairs decisions by noticing that genuinely political variables such as whether the chief executive is a military or whether fraudulent elections have been reported do not have any influence on Chinese relations with African countries. This provides indirect evidence for Chinese claims for non-interference, and thus for the validity of our instruments, once having controlled for economic effects of political turmoil.
Finally, we report the p-values for the Sargan overidentification test, which do not contradict the hypothesis that the instruments are exogenous conditional on the other one being exogenous.

Table 13. IV Regressions

Dep. Var:.	prvis_next (1)	prvis_next (2)	visit1_next (3)	prvis_next (4)	prvis_next (5)
program	-0.414*	-0.559*	-0.650*		
	(0.24)	(0.29)	(0.39)		
monetary_program				-0.384*	-0.523*
				(0.23)	(0.27)
aid_dac_lag	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
aid_dac	0.000384*	0.000419*	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
presidential visit	-0.12	-0.11		-0.12	-0.11
	(0.09)	(0.09)		(0.09)	(0.09)
quota	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
sscore_us_lag	-9.61	-7.11	2.72	-9.65	-7.18
	(8.22)	(8.77)	(11.90)	(8.15)	(8.67)
sscore_ch	9.04	6.86	-1.37	9.09	6.92
	(7.71)	(8.22)	(11.20)	(7.65)	(8.13)
oil_producer	-0.02	-0.05	-0.12	-0.03	-0.07
	(0.12)	(0.12)	(0.19)	(0.12)	(0.12)
yrs_inoffice	-0.0140**	-0.0183**	-0.0324***	-0.0138**	-0.0177**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
yrsnext_cod	0.0202**	0.01	-0.01	0.0197**	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
military	-0.17	-0.15	-0.07	-0.19	-0.17
	(0.13)	(0.12)	(0.25)	(0.12)	(0.12)
fraud	0.06	0.05	0.27	0.05	0.05
	(0.12)	(0.12)	(0.21)	(0.12)	(0.12)
maj_margin	0.548*			0.575*	
	(0.32)			(0.32)	
govern_orientation	0.1	0.147*	0.04	0.1	0.145*
	(0.08)	(0.07)	(0.10)	(0.08)	(0.07)
fdi	-1.37E-004	-1.57e-4*	1.31E-004	1.31E-004	-1.49e-4*
	(8.49E-005)	(8.47E-005)	(8.42E-005)	(8.39E-005)	(8.32E-005)
fdi_lag	0	0	1.23E-010	0	0
	(7.00E-011)	(7.28E-011)	(1.02E-010)	(6.81E-011)	(7.03E-011)
current_account_lag	0	0	-0.04	0	0
	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)
external_lag	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
tradechina_lag	0.272**	0.277**	0.34	0.267**	0.272**
	(0.11)	(0.11)	(0.23)	(0.10)	(0.11)
tradechina	-1.48e-10**	-1.55e-10**	-2.29E-010	-1.44e-10**	-1.51e-10**
	(6.89E-011)	(7.31E-011)	(1.39E-010)	(6.70E-011)	(7.11E-011)
gdpchange_lag	0	0	0.01	0	0
	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)
gdpchange	0.01	0.01	0.02	0.01	0.01
	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)
gdpcur_lag	-0.0000367*	0	0	-0.0000420*	-0.0000383*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
gdppc_lag	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
gdp_pccur	0.000000426*	0	0	0.000000484*	0.000000416*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
d_reserve	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
d_xrate	-0.000579**	0	0	-0.000570**	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
cycle_worldtrade_lag	0.0463**	0.0434*	0.03	0.0467**	0.0439*
	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)
cycle_worldgdpppp_lag	-0.194**	-0.174*	-0.05	-0.205**	-0.188**
	(0.09)	(0.09)	(0.12)	(0.09)	(0.09)
visit			0.231**		
			(0.11)		
Constant	0.14	0.45	0.51	0.13	0.45
	(0.38)	(0.31)	(0.41)	(0.38)	(0.31)
N	201	203	203	201	203
R-squared	0.17	0.11	0.39	0.18	0.12
Sargan overid test p-value	0.24	0.86	0.85	0.24	0.87

Robust standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Table 14. First Stage Regressions

Dep. Var:.	program (1)	program (2)	program (3)	monetary_program (4)	monetary_program (5)
controlhouse	0.444***	0.482***	0.478***	0.473***	0.517***
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)
checks	0.286***	0.248***	0.245***	0.308***	0.264***
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
aid_dac_lag	0.000292***	0.000274***	0.000270**	0.000262**	0.000240**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
aid_dac	0.000444***	0.000399***	0.000411***	0.000331**	0.000277*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
presidential visit	-0.02	-0.01		-0.02	0
	(0.04)	(0.04)		(0.04)	(0.05)
quota	-0.000300*	-0.000399**	-0.000358**	-0.000359**	-0.000450***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
sscore_us_lag	4.99	6.27	6.27	5.24	6.56
	(5.48)	(5.43)	(5.46)	(5.73)	(5.65)
sscore_ch	-4.28	-5.46	-5.44	-4.48	-5.71
	(5.30)	(5.27)	(5.30)	(5.55)	(5.48)
oil_producer	0.213**	0.172*	0.164*	0.203**	0.16
	(0.10)	(0.09)	(0.09)	(0.10)	(0.10)
yrs_inoffice	-0.00880**	-0.0123***	-0.0128***	-0.00891**	-0.0122***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
yrsnext_cod	0	-0.01	-0.01	0	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
military	-0.05	-0.07	-0.08	-0.11	-0.12
	(0.11)	(0.10)	(0.10)	(0.12)	(0.11)
fraud	0.01	-0.01	0	0	-0.02
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
maj_margin	0.4			0.504*	
	(0.27)			(0.29)	
govern_orientation	0.105**	0.125**	0.132**	0.105*	0.131**
	(0.05)	(0.05)	(0.05)	(0.06)	(0.05)
fdi	-4.49e-5**	-5.29e-5***	-4.59e-5**	-3.27e-5*	-4.17e-5**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
fdi_lag	-5.83e-5***	-6.59e-5***	-6.43e-5***	-5.77e-5***	-5.77e-5***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
current_account_lag	0	0	0	0.01	0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
external_lag	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
tradechina_lag	0.0781*	0.0732*	0.07	0.07	0.07
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)
tradechina_lag	-4.96e-11**	-4.91e-11*	-4.93e-11*	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
gdpchange_lag	0	0	0	0	0
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
gdpchange	0	-0.01	-0.01	0	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
gdpcur_lag	-0.0000311**	-0.0000255**	-0.0000278**	-0.0000474**	-0.0000387**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
gdppc_lag	-0.000000283**	0	-0.000000231*	-0.000000315**	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
gdp_pccur	0.000000539***	0.000000475***	0.000000498***	0.000000732***	0.000000628***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
d_reserve	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
d_xrate	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
cycle_worldtrade_lag	-0.01	-0.01	-0.01	0	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
cycle_worldgdpppp_lag	0.04	0.05	0.05	0.02	0.03
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
visit			-0.03		
			(0.02)		
Constant	-1.398***	-1.058***	-1.041***	-1.539***	-1.115***
	(0.39)	(0.31)	(0.31)	(0.40)	(0.32)
N	201	203	203	201	203
R-squared	0.54	0.52	0.52	0.48	0.46
Test allhouse=checks=0 F-stat	11.85	10.21	10.12	12.27	10.74

Robust standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

7.6 Assessing the impact of the substitution effect on Chinese aid flows to Africa

We found concordant results regarding the link between African countries' participation in IMF programs and their diplomatic relations with China. We used diplomatic visits as a proxy for aid flows, but we would be interested in a more precise assessment of the substitution effect between Chinese and IMF presence in Africa. In other words, our original question was: how much of Chinese aid and loans is providing Africa an alternative to IMF programs?

As we already said, our measure of Chinese loans, grants and aid is very unrefined. However, it is useful to provide a hint of the magnitude of the substitution effect.

Table 15 reports the effect diplomatic visits have on the amount of loans and aid agreed between China and African countries. This effect is quite large for presidential visits, as we hypothesized: one additional visit increases the amount agreed by more than 3 millions USD, which is around 20% of the mean (and is above the median). Generic visits, instead, are able to mobilize 1 million USD. Both results are significant at the 10% level.

Some back of the envelope calculations allow us to combine these results with the previous findings, and obtain a non rigorous, but still insightful, estimation of what we have called the substitution effect. Using our IV results (which are easier to interpret), both from Tables 11 and 13, we see that the onset of a new IMF program in an African country, or more generally participation in IMF program, reduces the amount of funds the country receives yearly from China by between 1.2 and 2 millions USD. This is quite a big difference, since it represents more than 10% of the average Chinese aid received by African countries, and is largely above the median, which is 0 both for Chinese programs and for IMF ones.

Once again, it is useful to repeat that these numbers do not represent rigorous causal effects. However, the insight they provide is still relevant: China is currently working as an alternative credit provider for African countries, and there is a significant substitution effect between IMF's (and possibly other IFIs') funds and Chinese ones.

Table 15. Impact of Diplomatic Visits on the Concession of Chinese Funds

Dep. Var.	chinese loan						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
presidential visit	3.108*	3.334*	3.829*	3.455*	3.583*	3.343*	
	(1.84)	(1.88)	(2.18)	(1.90)	(1.95)	(1.89)	
visit							1.118*
							(0.63)
sscore_ch_lag	-15.96*	-16.52*	-17.31*	-17.46*	-18.44*	-16.15*	-19.08*
	(8.58)	(8.65)	(8.98)	(9.02)	(9.37)	(8.89)	(9.78)
gdpcur_lag	0.0002	0.0003	0.0003	0.0003	0.0003	0.0002	0.0003
	(1.60E-004)	(1.70E-004)	(1.80E-004)	(1.90E-004)	(1.90E-004)	(1.80E-004)	(1.90E-004)
gdppc_lag	-1.30E-006	-4.76E-007	-2.70E-007	-4.72E-007	-6.42E-007	-6.17E-007	-3.65E-007
	(1.70E-006)	(1.80E-006)	(1.90E-006)	(1.80E-006)	(1.80E-006)	(1.60E-006)	(1.80E-006)
tradechina_lag	-0.555*	-0.670*	-0.703*	-0.676*	-0.716**	-0.661*	-0.488**
	(0.30)	(0.35)	(0.38)	(0.36)	(0.36)	(0.36)	(0.25)
oil_producer	2.5860	3.1360	3.6820	3.0160	3.2220	3.0860	2.6220
	(1.86)	(2.38)	(2.58)	(2.39)	(2.44)	(2.41)	(2.33)
d1_xrate	0.00542*	0.00479*	0.0050	0.0046	0.0046	0.0046	0.0042
	(0.0028)	(0.0029)	(0.0032)	(0.0028)	(0.0029)	(0.0028)	(0.0029)
d1_tot	1.3170	1.9350	0.7170	1.9590	1.9030	1.7480	2.4780
	(4.77)	(4.82)	(5.10)	(4.81)	(4.79)	(4.70)	(4.85)
fdi_lag	-6.26E-004	-7.12E-004	-8.71E-004	-6.71E-004	-6.82E-004	-6.93E-004	-0.00102*
	(4.10E-010)	(4.70E-010)	(5.37E-010)	(4.89E-010)	(4.47E-010)	(4.78E-010)	(5.49E-010)
program_lag	-0.67	-1.23	-1.18	-1.07	-1.12	-1.13	-0.89
	(1.43)	(1.51)	(1.59)	(1.44)	(1.42)	(1.50)	(1.43)
govern_orientation	-2.49	-2.925*		-2.818*	-2.866*	-2.889*	-2.868*
	(1.55)	(1.65)		(1.67)	(1.70)	(1.68)	(1.72)
yrsnext_cod		-0.17	-0.55	-0.16	-0.16	-0.17	-0.12
		(0.11)	(0.46)	(0.11)	(0.11)	(0.11)	(0.10)
controlhouse		2.44	2.39	2.85	3.25	2.23	2.28
		(2.09)	(2.16)	(2.20)	(2.10)	(2.04)	(2.06)
checks		-0.21	0.0189	-0.11	0.00	-0.25	-0.17
		(0.97)	(0.96)	(0.96)	(0.91)	(0.96)	(0.98)
executive_orientation			-2.93				
			(1.80)				
aid_dac				-0.0014	-0.0020		-0.0003
				(0.0019)	(0.0019)		(0.0019)
current_account_lag					-0.15		
					(0.20)		
chinese_loan_lag						0.0327	
						(0.10)	
Constant	10.82**	11.07*	11.14*	10.82*	10.69*	11.06*	11.81*
	-4.63	-6.55	-6.44	-6.5	-6.39	-6.58	-6.86
N	198.0000	198.00	177.0000	198.0000	198.0000	198.0000	198.0000
R-squared	0.12	0.15	0.16	0.15	0.15	0.15	0.12

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

8. Policy Implications

Our findings indicate that African countries facing a credit crunch by the IFIs find in China a valuable alternative. Diplomatic contacts with China grow for countries that need funds but face a less generous supply. And what happens during these visits is on every newspaper: agreements for cooperation projects are signed, that are, at least in the intentions, beneficial for both African development and Chinese economic growth.

This is only a preliminary study on a very recent and very complex phenomenon. What this paper does not do is to look in detail at the factors that might determine the switch in creditors, for instance conditionality. It is left for further research to investigate the link between conditions imposed by the IMF and Chinese offers of outside options to African countries.
In particular, the debate on conditionality, and more generally on the effectiveness of IMF programs in LICs, is still ongoing, and far from being resolved, as we mentioned in the Literature Review chapter. We, therefore, abstain to comment on this and focus on the perception of the IMF work in African countries, on the one hand, and on the relative specialization that could be achieved by China and the IFIs, on the other hand, arguing that it could be beneficial, more beneficial than a race to the bottom.

We think that our work provides some insights that are policy relevant for the IFIs. These implications are of course interlinked and address four main points: the difficulty in assessing the effectiveness of IMF programs, the relative inexperience of Chinese bureaucrats in providing resources to developing countries, the substitution effect that arises when China provides a low-cost, in terms of "no-strings-attached" agreements, alternative to IMF conditional financing, and the bad reputation that sometimes accompanies IMF-imposed reforms.
These ideas apply to other IFIs as well, but in the rest of the chapter we will refer to the IMF only, to stress the link with the findings illustrated in the previous chapter, that draw on IMF programs data.

1- The first issue that a researcher faces when trying to assess the IMF role in LICs is the lack of clear and homogenous data on funds' allocation decisions. The IMF should apply the same transparency rules it asks from participating countries to its own projects. It is in the IMF interest to provide good quality and accessible data to scholars wishing to analyze the impact of IMF programs on various

outcome variables. The Fund itself could benefit from resulting policy advice and adjust its programs accordingly.

Many authors[76] stress how IMF staff respond to incentives and personal motives, according to an agency model. IMF staff have the interest to deal with big and prestigious programs, that could gradually disappear if Chinese presence in Africa continues to erode IMF prevalence. Furthermore, the IMF suffers of bad reputation, at least in some areas. The attempt to apply the Washington consensus too extensively and without flexibility has created some discontent. A new approach to LICs could help rebuild consensus for the Fund programs, and it is only with an effort to communicate its activities to the public opinion in a clear and transparent manner, with a constructive debate supported by thorough analysis and complete data, that this consensus can emerge.

2- A second issue that is related to transparency and data availability for external analysis is the emergence of an aid competition to gain the favor, and what may come with it in terms of resources, of African countries.[77]

With this in mind, the IMF needs to improve its ability to communicate the effectiveness of its activities. Scholars around the world, and in particular African scholars, have begun to turn away from the Washington consensus. New forms of foreign interactions and economic models have been developed. The focus has moved to the Beijing consensus, for instance, and Chinese soft power: a model to emulate for other developing countries without bearing the political costs of foreign interference.[78]

Only providing rigorous analysis and data supporting their programs can IFIs justify their permanence in LICs, and win the aid race, so that it does not become a race to the bottom, together with African countries. This has happened in the past: Freytag and Pehnelt (2006) discuss the effectiveness of debt relief initiatives. The authors argue that one of the causes of poor performance of countries whose debt had been forgiven in the 1990s was exactly the lack of targeting of the initiative. In the following decade, instead, a better choice of the countries that should participate in the program, based also on political and institutional conditions, allowed those countries to improve their growth rates after the debt relief. A better understanding, and publicity, of these links, could influence the perception of conditionality borrowing countries have, a perception which we have documented to be sometimes

76 See for instance Stone (2008).

77 Do not forget that the IMF principals are Western countries.

78 See, for instance, Ramo (2004).

negative.

3- Our results on the determinants of IMF programs and Chinese aid show that there is room for some specialization based on a sort of competitive advantage, and not only on democracy standards or on political alliances. China, indeed, seems to be addressing the needs of the more dynamic countries. Tables 13 and 14, for instance, offer a good comparison: China is more likely to help countries with a higher GDP per capita. This is reasonable, since Chinese aid often comes linked with investments or FDI.

If the different actors in the game continue to comply with this trend, the role of the IMF in LICs, and in particular in Africa, is going to be redefined. This is not a complete revolution, though. The Fund's programs targeting poor countries have been in a continuous evolution during the past decade, in order to address better and better the specific needs of LICs. The next step in the process might be exactly the specialization on the poorest among the poor, leaving it to other countries, like China, to help the better-doing, through investments in infrastructures and labor-creating projects.

4- On the Chinese side, we observe that aid and lending decisions are taken mainly based on economic performance of the borrowing country. One drawback of this approach is the miscalculation of the investment risk. Democracy, or more generally high quality political standards, might not be desirable per se, but grant a safer environment for trade and projects. Thus, China might want to ask for these guarantees in the near future.

A possible scenario is that Chinese presence will increase in those countries that are either stable democracies or strong and well-established autocracies, leaving the dangerous countries where investments are too risky. The problem with this pattern is that the IMF too is unable, or unwilling, to address countries that do not meet certain institutional quality standards. Here specialization could fail, and possible solutions depend on the answer to the question on the effectiveness of IMF policies.

5- Another aspect of specialization is the education of new donors, or lenders, like China. Pehnelt (2007) suggests that the G8 and the donor community help China build an aid bureaucracy. Harmonized instruments as well as data transparency could help researchers to compare programs, in order to find the best way to integrate Western and Chinese approach to African development. Chinese aid is often mixed with FDI and other investment forms. Loans come with a variety of terms, interest

rates and length. The absence of a unified agency that negotiates agreements and drives the resources where they are most needed adds to the confusion, making the Ministry of Foreign Affairs and the Ministry of Economy responsible for development aid. Once again, then, agency problems raise, worsening the demonizing picture of an aggressive China using gifts to penetrate in the resource-rich but harmless African continent.

The IMF could take up the role of creating a new class of Chinese technicians, that would make Chinese aid not only more effective, but also much more complementary to programs by the IFIs. The substitution effect, in fact, is a good impulse to improve current programs, but, as we already mentioned, might foster a race to the bottom in terms of measures that ensure a sustainable and widespread development. Indeed, even if there is no evidence of a detrimental effect on democracy of trading with China[79], we do want to find ways to enhance economic development as well as what we call a democratization process that should enable all citizens of a country to benefit from that economic development.

6- Cooperation between China and the IFIs is crucial and must work at different levels. First of all, as Pehnelt (2007) notes, Chinese role in the governance of these institutions, and of the IMF in particular, should increase, and has already begun to increase. There is no sense in leaving China at the margins in the decision process, when it has external means of pressure that have proven able to annihilate IMF efforts in setting conditions for fighting corruption, as it was the case with Angola. By having it weight more within Western institutions, instead, the IFIs could exploit their relations with Chinese countries to negotiate conditions, just like what happened with the UN mission in Darfur in 2007.

7- Cooperation, then, should go as far as starting joint programs that could be monitored using Western standards and at the same time benefit from Chinese investments as well as know-how. The World Bank has already started to work in close contact with Chinese projects. Robert Zoellick, the World Bank president, has argued that western governments and international institutions, rather than simply criticize, should encourage China to act responsibly.[80] By getting their hands dirty working in close contact with China, the IFIs gain the credibility that they need to address China on human rights, democracy and development issues.

79 Meyersson et al. (2008).
80 http://www.ft.com/cms/s/0/2838c558-4e2f-11df-b48d-00144feab49a.html

8- At a theoretical, and earlier stage, the IMF could develop a think-tank structure that should include African scholars and local elites[81] to cooperate with the Western institution in theorizing the models that are behind the programs, and the conditions, implemented by the IMF. Thus, policy suggestions would not be seen as impositions that go against the traditional African institutions anymore.[82]

Finally, scholars who worked at the IMF, and convinced of the efficacy of those policies, are the best people to implement the much needed reforms, and to create a consensus on those economic models. The most important example is, of course, Ellen Johnson Sirleaf, Liberian President and former economist at the World Bank.

81 Without forgetting, though, that elites tend to prevent reforms in order to maintain the status-quo and their power. See, for instance, Rajan (2009) for a model of this process.

82 Mafeje (2002), for instance, does not discuss the IMF role explicitly, but focuses on the concept of an African developmental state that should be created in contra-position to the colonial state left in Africa as heritage from the colonial period.

9. Conclusions

To our knowledge, this paper is the first attempt to look at Chinese presence in Africa as an alternative to IFIs funds. What we find is that participation in IMF programs reduces relations with China, measured with reciprocal diplomatic visits, by at least one standard deviation. This finding holds across many different specifications. Moreover, our analysis suggests that this translates into loans and aid flows from China that are smaller by at least 1.2 millions USD.

In addition, following a recent stream of the literature we try to disentangle demand ans supply side determinants of IMF programs, and we are the first to focus on African countries, which have specific reasons to apply for Fund's programs, and receive a specific treatment. We use a bivariate probit model as well as instrumental variables analysis. The results are not clear-cut, but we find that institutional variables are in general more significant than economic ones, particularly in determining whether the IMF staff will approve a program or not.

Even more interestingly, we find that determinants of IMF programs and of Chinese involvement in Africa are very similar, which on the one hand provides supporting evidence for the substitution effect of Chinese capital flows to Africa versus IMF, and more generally, Western aid programs. On the other hand, the similarity in the pattern of relations between IMF and African countries on the one side, and China and African countries on the other, leaves much room for future cooperation. China acts rationally, according to its own strategic interests of course, and it is in its own interest to ensure that African governments, especially in resource-rich countries, are stable, stick to their commitments and do not lead their countries to wasteful civil wars that would destroy infrastructures. To sum up, even if they do not mention Western values, and claim not to interfere in African politics, Chinese seem to value at least some of the characteristics that Western politicians attribute to democratic countries. Thus, IFIs, Western governments and China should find ways to work together to help Africa develop. One possible solution is a specialization based on what we could call comparative advantages: China, being a country, is able to foster growth in its more dynamic partners, while the IMF could target the needs of the poorest countries through specific programs.

Scholars have described the increasing relevance of Chinese investments and aid in the African continent, and some of them have depicted this surge as a threat for the IMF role as a democratization

force. We do find, indeed, that China offers an outside option to countries that do not have access to, or are unsatisfied with, IMF programs. It is not clear, however, whether this constitutes a threat. We suggest a set of policy implications that would avoid a detrimental competition between IFIs and China, that could result both in a waste of already scarce resources and in a race to the bottom in terms of programs' quality. However, much is left for further research.

Here, we focus on the effect of credit crunch on Chinese involvement in Africa, and we find that it is positive and significant. It could be interesting, however, to compare it with the effect, if it exists, of credit crunch on Western countries involvement. It might, indeed, be the case that Western countries, which do not really apply conditionality, as we saw, still finance countries that do not have access to IMF resources.

Furthermore, we do need to deepen our understanding of the determinants of IMF decisions, especially in LICs. To do so, we need a formal model of the bargaining process that takes place at the negotiations stage, one that identifies the decision variables in a sort of IMF "utility function" that takes into account the principal-agent problem.

But this is not enough. To refine the analysis on IMF programs determinants we need to have better data, and this can happen only with time, with panels going longer, as well as with the crucial contribution of the IMF itself.

The same applies to Chinese data. The OECD is compiling a database of non-OECD donors. Scholars are exploiting press releases and officers' statements to assess the amount of resources that flow from China to Africa. Chinese aid to LICs is a very recent field of study, and the material available to researchers is still very little. More insights on Chinese presence in Africa are needed: data on Chinese immigration, as well as on the social conflicts that follows immigration, would be welcome to refine the analysis on Chinese diplomatic exchanges on African countries.

It looks like the agenda for further research is still pretty long. This work provides some preliminary evidence that there are interesting and significant links between Western and Chinese presence in Africa. The complexity of Chinese foreign and economic policies makes these links highly non-trivial, and ours is only a first, superficial glance. A deeper understanding of these mechanisms will enable Western policy-makers to avoid oversimplification and prejudices when dealing with the increasing Chinese relevance in the African continent.

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Appendix

Table A1. Variables Description

Variable	Description	Unit	Source
presidential visit	Diplomatic visits at presidential and prime minister level between the country and China		PRC Ministry of Foreign Affairs
visit	Total diplomatic visits		PRC Ministry of Foreign Affairs
chinese loan	Amount granted to the country by China per year	Millions of USD	Own Lexis Nexis Query
exportchina	Value of exports to China	Billions of USD	COMTRADE
program	Dummy for IMF program participation		IMF
monetary_program	Dummy for IMF monetary program participation		IMF
amountdrawn_yearly	Amount of IMF resources drawn per year by the country under a program	SDR	IMF
totalamoundrawn	Total amount of IMF resources drawn by the country under a program	SDR	IMF
amountagreed	Amount of IMF resources agreed under a program	SDR	IMF
program_new	Dummy for IMF program onset		IMF
monetary_new	Dummy for IMF monetary program onset		IMF
quota	Country quota in the IMF	Millions of SDR	IMF
totaldisbursement	Total IMF disbursements per year	Billions of SDR	IMF
d_xrate	Change in the exchange rate		IMF IFS
d_tot	Change in the terms of trade		Penn Tables
d_reserve	Change in reserves	Millions of SDR	IMF IFS
gdp_pc_con	GDP per capita at constant prices	National Currency	IMF WEO
gdp_pc_cur	GDP per capita at current prices	National Currency	IMF WEO
gdpcon	GDP at constant prices (base: 2008)	Billions, national currency	IMF WEO
gdpcur	GDP at current prices	Billions, national currency	IMF WEO
gdpdol	GDP in dollars	Billions of USD	IMF WEO
gdpchange	Percent change in GDP		IMF WEO
d_nonfuelprice	Change in price index of non fuel commodities		IMF WEO
cycle_worldgdpppp	Cyclical component of world GDP (measured at purchase parity prices)		IMF WEO
cycle_worldgdpcur	Cyclical component of world GDP (measured at current prices)		IMF WEO
cycle_worldtrade	Cyclical component of world trade		IMF WEO
d_macro_index	Change in macrostability index		
fdi	FDI inflows	Millions of USD	World Bank GDF
external	External debt	Millions of USD	World Bank GDF
external_gdp	External debt over GDP	Millions of USD	World Bank GDF
current_account	Current account balance	USD	World Bank WDI
curraccount_gdp	Current account balance over GDP	USD	World Bank WDI
oil_producer	Dummy for oil producing countries		USGS Minerals Yearbook
aid_dac	Aid from DAC countries	Millions of USD	OECD DAC
yrs_nextelection	Years to next election		World Bank DPI
yrsnext_cod	Years to next election (missing values recoded as 25)		World Bank DPI
yrsnext_99	Years to next election (missing values recoded as 99)		World Bank DPI
yrs_inoffice	Years the chief executive has been in office		World Bank DPI
govern_orientation	Political orientation of the government leading party		World Bank DPI
executive_orientation	Political orientation of the executive		World Bank DPI
military	Dummy for the chief executive being a military		World Bank DPI
controlhouse	Dummy for the executive controlling all relevant houses		World Bank DPI
maj_margin	Margin of majority		World Bank DPI
checks	Checks and balances		World Bank DPI
fraud	Dummy for fraudolent elections		World Bank DPI
status	Freedom House status		Freedom House
sscore_us	Proximity score of voting patterns at the UN General Assembly between a country and the US		UNGA Voting Data
sscore_ch	Proximity score of voting patterns at the UN General Assembly between a country and China		UNGA Voting Data

Table A2. Bivariate Probit Estimation of IMF Loans Demand and Supply, Alternative Specification

Dep. Var:.	prg_demand	prg_supply	prg_demand	prg_supply	prg_demand	prg_supply
	2		3		5	
curraccount_gdp_lag2	6.37				0.5	
	(7.42)				(5.52)	
dl_xrate	0.02		0		0.02	
	(0.01)		(0.00)		(0.01)	
yrsinoffice	-0.09		-0.0554*		-0.07	
	(0.07)		(0.03)		(0.05)	
yrs_nextelection	0.1		0.06		0.05	
	(0.23)		(0.10)		(0.20)	
aid_dac_lag2	0.01	0			0	0
	(0.00)	(0.00)			(0.00)	(0.00)
cycle_worldgdpppp_lag2	0.39		0.29		0.15	
	(0.32)		(0.19)		(0.22)	
gdppc_lag2	0.0000149*				0.0000145*	
	(0.00)				(0.00)	
gdpchange_lag2	0.04	-0.01			0.05	0
	(0.08)	(0.03)			(0.07)	(0.04)
external_lag2		1.29e-4**				1.39e-4**
		(5.36E-005)				(5.50E-005)
executive_orientation		-0.35		0		-0.27
		(0.29)		(0.16)		(0.24)
gdpcur_lag2		0.0000591*				0.0000528*
		(0.00)				(0.00)
quota		-0.00335***		-0.00114**		-0.00298**
		(0.00)		(0.00)		(0.00)
totaldisbursement		0		0		0.0284*
		(0.00)		(0.00)		(0.00)
dl_nonfuelprice		0.01		0		0.01
		(0.02)		(0.01)		(0.02)
military		-0.02		0.37		
		(0.41)		(0.38)		
checks		0.510**		0.444**		0.451**
		(0.20)		(0.20)		(0.19)
controlhouse		0.41		0.21		0.34
		(0.44)		(0.40)		(0.43)
external_gdp_lag			-2.33E-004			
			(3.83E-004)			
oil_producer						-0.08
						(0.36)
fdi_lag2					-6.09E-004	
					(3.91E-004)	
aid_dac_lag			-0.00118*	0.00189**		
			(0.00)	(0.00)		
current_account_lag				-0.01		
				(0.05)		
gdpcur_lag				0.000209**		
				(0.00)		
status				0.26		
				(0.24)		
gdppc_lag			0			
			(0.00)			
Constant	-1.71	-1.33	1.648*	-2.586**	-0.71	-1.499*
	(1.45)	(1.13)	(0.84)	(1.16)	(1.55)	(0.90)
N	211	211	220	220	211	211
R-squared	.	.	.	.	.	.
AIC	210.56		223.77		209.36	
BIC	277.59		291.64		276.4	
goodness	0.2085		0.2045		0.2275	
Likelihood ratio test chi squared	66.28		53.33		67.47	
Likelihood ratio test p-value	0		0		0	

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table A3. Tobit Estimation of Diplomatic Visits using results from first-step specification 1_99

Dep. Var:.	presidential visit					
	(1)	(2)	(3)	(4)	(5)	(6)
demand_lag	1.08	1.42	1.55	1.08	1.38	1.671*
	(1.12)	(0.92)	(0.96)	(1.14)	(0.93)	(0.94)
supply_lag	-2.08	-2.32	-2.3	-2.08	-2.12	-2.12
	(1.69)	(1.45)	(1.45)	(1.72)	(1.43)	(1.45)
sscore_ch_lag	-3.28	-2.75	-2.38	-3.28	-2.66	-2.55
	(2.59)	(2.23)	(2.32)	(2.58)	(2.21)	(2.31)
fdi_lag	1.74E-004			1.74E-004		
	(1.45E-004)			(1.49E-004)		
curraccount_gdp_lag	-7.93	-12.01	-11.73	-7.93	-12.46	-11.13
	(18.10)	(13.10)	(13.20)	(17.50)	(12.70)	(13.20)
d_reserve	0	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
d_tot	3.781*			3.781*		
	(2.08)			(2.10)		
external_gdp_lag	-6.78E-004			-6.78E-004		
	(2.09E-003)			(1.99E-003)		
presidential_visit_lag	0.42	0.2	0.19	0.42	0.14	0.15
	(0.28)	(0.26)	(0.26)	(0.29)	(0.27)	(0.26)
program_lag2	-1.405**	-1.296***	-1.387***	-1.405**	-1.222***	-1.361***
	(0.63)	(0.41)	(0.41)	(0.64)	(0.41)	(0.42)
cycle_worldgdpcur_lag	0.07	0	-0.01	0.07	0	
	(0.08)	(0.04)	(0.04)	(0.08)	(0.04)	
controlhouse	-0.32	0	0.01	-0.32	-0.25	-0.29
	(0.61)	(0.54)	(0.55)	(0.61)	(0.60)	(0.60)
status	0.07	0.26	0.25	0.07	0.14	0.15
	(0.36)	(0.27)	(0.27)	(0.36)	(0.30)	(0.30)
yrs_inoffice	-0.01			-0.01		
	(0.04)			(0.04)		
yrsnext_99	-0.19	-0.06	-0.06	-0.19	-0.04	-0.04
	(0.13)	(0.11)	(0.11)	(0.13)	(0.11)	(0.11)
gdppc_lag	0	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
military		-1.52	-1.42		-1.72	-1.63
		(1.19)	(1.20)		(1.15)	(1.20)
checks					-0.23	-0.24
					(0.25)	(0.24)
aid_dac_lag		0	0		0	0
		(0.00)	(0.00)		(0.00)	(0.00)
gdpcur_lag			0			0
			(0.00)			(0.00)
cy_worldgdpppp_lag						-0.11
						(0.12)
Constant	1.06	0.01	-0.11	1.06	0.94	0.91
	(1.45)	(1.15)	(1.19)	(1.47)	(1.58)	(1.58)
N	135	157	157	135	156	156
R-squared	.	.	.	.	.	.
Test dem=sup=0 p-value	0.04	0.0008	0.0007	0.04	0.0024	0.0012

Standard errors in parentheses

Table A4. Tobit Estimation of Diplomatic Visits using results from first-step specification 4_99

Dep. Var:.	presidential visit					
	(1)	(2)	(3)	(4)	(5)	(6)
demand_lag	1.11	1.51	1.630*	1.11	1.45	1.718*
	(1.14)	(0.95)	(0.94)	(1.14)	(0.96)	(0.95)
supply_lag	-2.18	-2.34	-2.34	-2.18	-2.13	-2.17
	(1.71)	(1.46)	(1.43)	(1.70)	(1.46)	(1.48)
sscore_ch_lag	-3.32	-2.85	-2.48	-3.32	-2.75	-2.65
	(2.59)	(2.27)	(2.31)	(2.59)	(2.28)	(2.35)
fdi_lag	1.79E-004			1.79E-004		
	(1.56E-004)			(1.48E-004)		
curraccount_gdp_lag	-7.72	-12.28	-11.96	-7.72	-12.81	-11.44
	(18.20)	(13.20)	(13.50)	(18.60)	(13.00)	(13.60)
d_reserve	0	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
d_tot	3.791*			3.791*		
	(2.12)			(2.11)		
external_gdp_lag	-5.97E-004			-5.97E-004		
	(2.17E-003)			(2.42E-003)		
presidential_visit_lag	0.43	0.21	0.21	0.43	0.15	0.15
	(0.28)	(0.26)	(0.25)	(0.28)	(0.27)	(0.26)
program_lag2	-1.408**	-1.292***	-1.382***	-1.408**	-1.216***	-1.354***
	(0.58)	(0.40)	(0.42)	(0.62)	(0.42)	(0.42)
cycle_worldgdpcur_lag	0.07	0	-0.01	0.07	0	
	(0.08)	(0.04)	(0.04)	(0.08)	(0.04)	
controlhouse	-0.32	0.01	0.02	-0.32	-0.27	-0.31
	(0.61)	(0.54)	(0.53)	(0.61)	(0.61)	(0.59)
status	0.1	0.29	0.27	0.1	0.14	0.16
	(0.36)	(0.26)	(0.26)	(0.36)	(0.30)	(0.29)
yrs_inoffice	-0.01			-0.01		
	(0.04)			(0.04)		
yrsnext_99	-0.19	-0.06	-0.06	-0.19	-0.05	-0.04
	(0.13)	(0.11)	(0.11)	(0.13)	(0.11)	(0.11)
gdppc_lag	0	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
military		-1.48	-1.38		-1.72	-1.63
		(1.21)	(1.20)		(1.20)	(1.17)
checks					-0.27	-0.27
					(0.24)	(0.25)
aid_dac_lag		0	0		0	0
		(0.00)	(0.00)		(0.00)	(0.00)
gdpcur_lag			0			0
			(0.00)			(0.00)
cy_worldgdpppp_lag						-0.1
						(0.12)
Constant	0.98	-0.11	-0.22	0.98	0.98	0.96
	(1.45)	(1.17)	(1.18)	(1.45)	(1.59)	(1.58)
N	136	158	158	136	157	157
R-squared	.	.	.	.	.	.
Test dem=sup=0 p-value	0.05	0.0010	0.0008	0.05	0.0032	0.0021

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table A5. Tobit Estimation of Diplomatic Visits using results from first-step specifications 1 and 4

Dep. Var:.	presidential visit					
	(1)	(2)	(3)	(4)	(5)	(6)
demand1_lag	1.11	1.34	1.48			
	(1.13)	(0.92)	(0.95)			
supply1_lag	-2.11	-2.13	-2.12			
	(1.72)	(1.46)	(1.45)			
demand4_lag				1.14	1.41	1.54
				(1.13)	(0.94)	(0.95)
supply4_lag				-2.15	-2.15	-2.14
				(1.73)	(1.47)	(1.43)
sscore_ch_lag	-3.29	-2.64	-2.27	-3.35	-2.72	-2.35
	(2.61)	(2.24)	(2.33)	(2.58)	(2.26)	(2.34)
fdi_lag	1.74E-004			1.77E-004		
	(1.49E-004)			(1.44E-004)		
curraccount_gdp_lag	-8.33	-13.23	-12.96	-7.85	-13.16	-12.86
	(17.30)	(13.00)	(12.80)	(17.90)	(13.10)	(12.90)
d_reserve	0	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
d_tot	3.772*			3.776*		
	(2.12)			(2.09)		
external_gdp_lag	-5.70E-004			-5.38E-004		
	(1.89E-003)			(1.94E-003)		
presidential_visit_lag	0.42	0.15	0.14	0.43	0.15	0.15
	(0.28)	(0.27)	(0.26)	(0.28)	(0.27)	(0.27)
program_lag2	-1.410**	-1.217***	-1.312***	-1.411**	-1.215***	-1.312***
	(0.62)	(0.41)	(0.42)	(0.63)	(0.43)	(0.43)
cycle_worldgdpcur_lag	0.07	0	-0.01	0.07	0	-0.01
	(0.08)	(0.04)	(0.04)	(0.07)	(0.04)	(0.04)
controlhouse	-0.31	-0.24	-0.22	-0.31	-0.26	-0.25
	(0.60)	(0.61)	(0.60)	(0.60)	(0.61)	(0.60)
status	0.09	0.15	0.13	0.09	0.14	0.12
	(0.35)	(0.30)	(0.30)	(0.36)	(0.30)	(0.30)
yrs_inoffice	-0.01			-0.01		
	(0.04)			(0.04)		
yrs_nextelection	-0.18	-0.04	-0.04	-0.19	-0.05	-0.05
	(0.13)	(0.11)	(0.11)	(0.13)	(0.11)	(0.11)
gdppc_lag	0	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
military		-1.67	-1.57		-1.67	-1.57
		(1.18)	(1.21)		(1.17)	(1.17)
aid_dac_lag		0	0		0	0
		(0.00)	(0.00)		(0.00)	(0.00)
gdpcur_lag			0			0
			(0.00)			(0.00)
checks		-0.24	-0.24		-0.25	-0.26
		(0.24)	(0.24)		(0.24)	(0.24)
Constant	1	0.93	0.82	1.01	0.98	0.88
	(1.43)	(1.57)	(1.57)	(1.45)	(1.56)	(1.56)
N	135	156	156	136	157	157
R-squared	.	.	.			
Test dem=sup=0 p-value	0.04	0.0033	0.0024	0.0373	0.0031	0.0021

Table A6. OLS Estimation of Diplomatic Visits using results from first-step specification 4_cod

Dep. Var:.	presidential visit						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
demand_lag	0.44	0.565*	0.565*	0.608*	0.44	0.532*	0.598*
	(0.35)	(0.31)	(0.32)	(0.32)	(0.35)	(0.32)	(0.33)
supply_lag	-0.71	-0.48	-0.48	-0.49	-0.71	-0.43	-0.44
	(0.47)	(0.39)	(0.39)	(0.38)	(0.47)	(0.38)	(0.37)
sscore_ch_lag	-0.42	-0.47	-0.47	-0.34	-0.42	-0.39	-0.32
	(0.77)	(0.68)	(0.67)	(0.69)	(0.77)	(0.69)	(0.72)
fdi_lag	9.43E-005				9.43E-005		
	(6.64E-005)				(6.59E-005)		
curraccount_gdp_lag	-0.9	-1.79	-1.79	-1.6	-0.9	-1.83	-1.45
	(3.98)	(3.31)	(3.30)	(3.35)	(4.06)	(3.34)	(3.24)
d_reserve	0	0	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
d_tot	0.911**				0.911**		
	(0.44)				(0.44)		
external_gdp_lag	0				0		
	(1.90E-004)				(1.88E-004)		
presidential_visit_lag	0.17	0.12	0.12	0.12	0.17	0.1	0.1
	(0.11)	(0.10)	(0.10)	(0.10)	(0.11)	(0.10)	(0.10)
program_lag2	-0.395***	-0.366***	-0.366***	-0.393***	-0.395***	-0.332***	-0.366***
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.12)	(0.12)
cycle_worldgdpcur_lag	0.01	0	0	0	0.01	0	
	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)	(0.01)	
controlhouse	-0.16	-0.06	-0.06	-0.05	-0.16	-0.14	-0.14
	(0.20)	(0.18)	(0.18)	(0.18)	(0.20)	(0.20)	(0.20)
status	-0.06	0.04	0.04	0.04	-0.06	0	0
	(0.11)	(0.09)	(0.09)	(0.09)	(0.11)	(0.10)	(0.10)
yrs_inoffice	0				0		
	(0.01)				(0.01)		
yrsnext_cod	-0.05	-0.03	-0.03	-0.03	-0.05	-0.02	-0.03
	(0.04)	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)	(0.03)
gdppc_lag	0	0	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
military		-0.324**	-0.324**	-0.287*		-0.401**	-0.364**
		(0.16)	(0.16)	(0.15)		(0.17)	(0.16)
checks						-0.08	-0.08
						(0.08)	(0.08)
aid_dac_lag		0	0	0		0	0
		(0.00)	(0.00)	(0.00)		(0.00)	(0.00)
cycle_worldgdpppp_lag							-0.02
							(0.03)
gdpcur_lag				0			0
				(0.00)			(0.00)
Constant	0.847**	0.52	0.52	0.48	0.847**	0.858*	0.83
	(0.41)	(0.36)	(0.36)	(0.35)	(0.40)	(0.50)	(0.51)
N	136	158	158	158	136	157	157
R-squared	0.25	0.18	0.18	0.18	0.25	0.18	0.19
Test dem=sup=0 p-value	0.0032	0.0003	0.0003	0.0004	0.0034	0.0014	0.0013

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table A7. Fixed Effects Estimation of Exports to China using first-step specification 4_cod

Dep. Var:.	exportchina (1)	exportchina (2)	exportchina (3)	exportchina (4)	exportchina (5)
demand_lag	0.63	0.7	0.88	0.89	0.64
	(1.24)	(1.24)	(1.40)	(1.42)	(1.23)
supply_lag	-2.996**	-3.013**	-3.131**	-3.105**	-3.048**
	(1.36)	(1.39)	(1.36)	(1.37)	(1.39)
exportchina_lag	0.906***	0.904***	0.915***	0.914***	0.909***
	(0.20)	(0.20)	(0.21)	(0.20)	(0.21)
aid_dac_lag	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
external_lag	0	0	5.16E-011	5.05E-011	5.07E-011
	(6.03E-005)	(5.92E-005)	(5.98E-005)	(6.05E-005)	(6.05E-005)
sscore_ch_lag	-1.76	-1.92	-1.09	-1.13	-1.96
	(1.61)	(1.62)	(1.41)	(1.46)	(1.66)
cycle_worldtrade_lag	0.02	0.02	0.01	0.01	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
yrsnext_cod	0.02	0.02	0.02	0.02	0.02
	(0.07)	(0.07)	(0.07)	(0.08)	(0.07)
yrs_inoffice	0.02	0.02	0.03	0.04	0.02
	(0.04)	(0.04)	(0.06)	(0.06)	(0.04)
controlhouse	1.82	1.86	1.96	1.93	1.84
	(1.93)	(1.91)	(1.94)	(1.98)	(1.94)
maj_margin	-6.04	-6.02	-7.05	-7.09	-6.15
	(6.58)	(6.48)	(6.96)	(7.15)	(6.59)
military	0.98	0.95	1.01	1	1.02
	(1.70)	(1.71)	(1.69)	(1.75)	(1.66)
checks	-0.19	-0.17	-0.3	-0.31	-0.17
	(0.27)	(0.26)	(0.30)	(0.31)	(0.27)
d_xrate	0		0	0	0
	(0.01)		(0.01)	(0.01)	(0.01)
d_nonfuelprice	0.03	0.03	0.03	0.03	0.03
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
gdppc_lag	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
program_yrlag2	0.1	0.11	0.19	0.19	0.1
	(0.27)	(0.27)	(0.28)	(0.29)	(0.27)
oil_producer			-1.29	-1.24	
			(1.17)	(1.17)	
cycle_worldgdpppp_lag					0.11
					(0.10)
status				-0.17	
				(0.30)	
Constant	3.23	3.24	4.27	4.7	3.33
	(3.26)	(3.18)	(3.73)	(4.08)	(3.27)
N	149	150	149	149	149
Number of alfa	24	24	24	24	24
R-squared	0.8	0.8	0.8	0.8	0.8
Test dem=sup=0 p-value	0.09	0.09	0.07	0.07	0.09

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table A8. IV of Diplomatic Visits using Predicted Values from first-step specification 4_cod as Instruments for IMF programs

Dep. Var:.	presidential visit								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
prg_new_lag	-0.462*	-0.529*	-0.502*	-0.505*	-0.510*	-0.513*	-0.522*	-0.524*	-0.529*
	(0.27)	(0.27)	(0.29)	(0.29)	(0.26)	(0.27)	(0.28)	(0.27)	(0.28)
sscore_ch_lag	0.3	0.08	0.05	0.02	0.07	-0.36	0.08	-0.07	0.07
	(0.92)	(0.97)	(0.96)	(1.00)	(0.97)	(0.89)	(0.97)	(0.99)	(0.98)
fdi_lag	7.17E-005	6.05E-005	7.45E-005	6.71E-005	6.07E-005	6.24E-005	5.74E-005	6.60E-005	6.05E-005
	(7.13E-005)	(7.24E-005)	(8.40E-005)	(7.52E-005)	(7.28E-005)	(7.35E-005)	(7.60E-005)	(7.31E-005)	(7.28E-005)
curraccount_gdp_lag	-1.43	-3.71	-3.61	-3.62	-4	-4.56	-3.62	-3.67	-3.71
	(3.86)	(4.17)	(4.16)	(4.17)	(3.98)	(3.84)	(4.24)	(4.19)	(4.18)
d_reserve	0	0	0	0	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
d_tot	0.6	0.64	0.62	0.65	0.64	0.73	0.63	0.65	0.64
	(0.47)	(0.49)	(0.48)	(0.50)	(0.48)	(0.50)	(0.49)	(0.50)	(0.49)
external_gdp_lag	-2.25E-004	-2.03E-004	-2.00E-004	-2.02E-004	-2.10E-004	-1.70E-004	-2.16E-004	-1.92E-004	-2.03E-004
	(1.59E-004)	(1.54E-004)	(1.52E-004)	(1.52E-004)	(1.53E-004)	(1.49E-004)	(1.65E-004)	(1.48E-004)	(1.55E-004)
presidential_visit_lag	0.188*	0.16	0.17	0.17	0.16	0.15	0.16	0.17	0.16
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.12)	(0.11)	(0.11)
program_lag2	-0.227*	-0.254**	-0.248**	-0.250**	-0.259**	-0.263**	-0.248**	-0.258**	-0.254**
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.13)
cycle_worldgdpppp_lag	-0.05	-0.03	-0.03	-0.03	-0.03		-0.03	-0.11	-0.03
	(0.07)	(0.08)	(0.08)	(0.08)	(0.08)		(0.08)	(0.11)	(0.08)
controlhouse	-0.13	-0.08	-0.09	-0.09	-0.07	-0.1	-0.08	-0.1	-0.08
	(0.21)	(0.22)	(0.22)	(0.23)	(0.22)	(0.23)	(0.22)	(0.23)	(0.23)
status	0	0.01	0.01	0.01	0	0	0	0.01	0.01
	(0.11)	(0.11)	(0.11)	(0.11)	(0.10)	(0.11)	(0.11)	(0.11)	(0.11)
yrs_inoffice	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
yrsnext_cod	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
gdppc_lag	0	0	0	0	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
military		-0.24	-0.24	-0.25	-0.23	-0.305*	-0.24	-0.26	-0.24
		(0.18)	(0.17)	(0.17)	(0.17)	(0.16)	(0.18)	(0.17)	(0.18)
aid_dac_lag			0						
			(0.00)						
d_xrate									0
									(0.00)
cycle_worldtrade_lag								0.02	
								(0.02)	
oil_producer							0.03		
							(0.17)		
cycle_worldgdpcur_lag						0.03			
						(0.02)			
gdpchange_lag					0.01				
					(0.02)				
gdpcur_lag				0					
				(0.00)					
Constant	0.660*	0.712*	0.715*	0.725*	0.680*	0.903**	0.717*	0.780**	0.714*
	(0.37)	(0.38)	(0.38)	(0.39)	(0.38)	(0.37)	(0.38)	(0.39)	(0.39)
N	136	136	136	136	136	136	136	136	136
R-squared	0.06	0.04	0.05	0.05	0.05	0.06	0.04	0.05	0.04

Robust standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table A9. First Stage Regressions using predicted values from specification 4_cod

Dep. Var:.	prg_new_lag (1)	prg_new_lag (2)	prg_new_lag (3)	prg_new_lag (4)	prg_new_lag (5)	prg_new_lag (6)	prg_new_lag (7)	prg_new_lag (8)	prg_new_lag (9)
imfprogram4cod_lag	1.221***	1.234***	1.166***	1.193***	1.269***	1.248***	1.226***	1.239***	1.234***
	(0.22)	(0.22)	(0.23)	(0.24)	(0.21)	(0.21)	(0.23)	(0.21)	(0.22)
sscore_ch_lag	0.59	0.63	0.66	0.69	0.64	0.31	0.63	0.52	0.64
	(0.43)	(0.48)	(0.47)	(0.49)	(0.47)	(0.44)	(0.48)	(0.47)	(0.48)
fdi_lag	0	0	0	0	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
curraccount_gdp_lag	-2.46	-2.13	-2.22	-2.19	-2.63	-2.78	-2.2	-2.1	-2.13
	(1.82)	(2.16)	(2.17)	(2.12)	(2.06)	(2.00)	(2.21)	(2.14)	(2.16)
d_reserve	0	0	0	0	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
d_tot	0.02	0.01	0.05	-0.01	0.01	0.08	0.02	0.03	0.02
	(0.30)	(0.30)	(0.30)	(0.30)	(0.29)	(0.30)	(0.30)	(0.29)	(0.29)
external_gdp_lag	0	0	0	0	0	0	0	0	0
	(1.43E-010)	(1.48E-010)	(1.48E-010)	(1.47E-010)	(1.46E-010)	(1.39E-010)	(1.52E-010)	(1.38E-010)	(1.48E-010)
presidential_visit_lag	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	0	0	-0.01
	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)	(0.04)	(0.05)	(0.04)	(0.04)
program_lag2	-0.05	-0.05	-0.06	-0.05	-0.06	-0.06	-0.06	-0.05	-0.05
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
cycle_worldgdpppp_lag	-0.02	-0.02	-0.03	-0.02	-0.02		-0.02	-0.08	-0.02
	(0.03)	(0.04)	(0.04)	(0.04)	(0.04)		(0.04)	(0.06)	(0.04)
controlhouse	0.09	0.08	0.08	0.09	0.09	0.07	0.08	0.07	0.08
	(0.12)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)
status	-0.07	-0.08	-0.07	-0.08	-0.08	-0.08	-0.07	-0.07	-0.08
	(0.06)	(0.06)	(0.06)	(0.06)	(0.05)	(0.06)	(0.06)	(0.06)	(0.06)
yrs_inoffice	0	0	0	0	0	0	0	0	0
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
yrsnext_cod	0.02	0.02	0.02	0.02	0.01	0.01	0.02	0.01	0.02
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
gdppc_lag	0	0	0	0	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
military		0.04	0.03	0.05	0.05	-0.01	0.04	0.02	0.04
		(0.13)	(0.13)	(0.13)	(0.13)	(0.12)	(0.13)	(0.13)	(0.13)
aid_dac_lag			0						
			(0.00)						
d_xrate									0
									(0.00)
cycle_worldtrade_lag								0.02	
								(0.01)	
oil_producer							-0.03		
							(0.10)		
cycle_worldgdpcur_lag						0.02			
						(0.02)			
gdpchange_lag					0.01				
					(0.01)				
gdpcur_lag				0					
				(0.00)					
Constant	-0.17	-0.18	-0.17	-0.19	-0.23	-0.03	-0.18	-0.12	-0.18
	(0.22)	(0.23)	(0.23)	(0.23)	(0.24)	(0.22)	(0.23)	(0.23)	(0.24)
N	136	136	136	136	136	136	136	136	136
R-squared	0.3263	0.3270	0.3370	0.3303	0.3377	0.3408	0.3277	0.3379	0.3270

Robust standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table A10. IV on Total Visits and First Stage Estimates

Dep. Var:.	visit	visit	visit	visit	prg_new_lag	prg_new_lag	prg_new_lag	prg_new_lag
prg_new_lag	-0.928*	-0.894*	-0.938*	-0.906*				
	(0.50)	(0.46)	(0.50)	(0.46)				
imfprogram1cod_lag					1.225***	1.242***		
					(0.22)	(0.21)		
imfprogram4cod_lag							1.221***	1.238***
							(0.22)	(0.21)
sscore_ch_lag	2.34	1.48	2.33	1.48	0.62	0.32	0.62	0.32
	(1.94)	(1.49)	(1.94)	(1.49)	(0.47)	(0.45)	(0.47)	(0.44)
fdi_lag	2.03e-4**	2.20e-4***	2.04e-4**	2.20e-4***	0	0	0	0
	(8.51E-005)	(8.30E-005)	(8.52E-005)	(8.27E-005)	(8.51E-005)	(8.30E-005)	(8.52E-005)	(8.27E-005)
curraccount_gdp_lag	-3.67	-4.55	-3.38	-4.49	-2.26	-2.81	-2.22	-2.82
	(8.76)	(7.89)	(8.68)	(7.82)	(2.19)	(2.03)	(2.16)	(1.99)
d_reserve	0	0	0	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
d_tot	-0.01	0.16	-0.01	0.16	0.04	0.11	0.04	0.11
	(0.82)	(0.73)	(0.82)	(0.74)	(0.30)	(0.30)	(0.30)	(0.30)
external_gdp_lag	-1.33E-004	-5.43E-005	-1.28E-004	-5.25E-005	0	0	0	0
	(3.67E-004)	(3.09E-004)	(3.69E-004)	(3.09E-004)	(1.46E-004)	(1.38E-004)	(1.46E-004)	(1.39E-004)
visit_lag	0.516***	0.528***	0.516***	0.528***	-0.01	-0.01	-0.01	-0.01
	(0.11)	(0.10)	(0.11)	(0.10)	(0.01)	(0.01)	(0.01)	(0.01)
program_lag2	-0.28	-0.29	-0.28	-0.29	-0.05	-0.06	-0.05	-0.06
	(0.22)	(0.22)	(0.22)	(0.22)	(0.10)	(0.10)	(0.10)	(0.10)
cycle_worldgdpppp_lag	0.02		0.02		-0.02		-0.02	
	(0.16)		(0.16)		(0.04)		(0.04)	
military	-0.36	-0.49	-0.34	-0.49	0.03	-0.02	0.03	-0.02
	(0.34)	(0.31)	(0.33)	(0.30)	(0.13)	(0.12)	(0.13)	(0.12)
controlhouse	0.15	0.07	0.15	0.07	0.08	0.07	0.08	0.07
	(0.28)	(0.29)	(0.28)	(0.29)	(0.13)	(0.13)	(0.13)	(0.13)
status	0.17	0.17	0.17	0.17	-0.07	-0.08	-0.07	-0.08
	(0.17)	(0.17)	(0.17)	(0.17)	(0.06)	(0.06)	(0.06)	(0.06)
yrs_inoffice	-0.03	-0.03	-0.03	-0.03	0	0	0	0
	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)
yrsnext_cod	-0.01	-0.04	-0.01	-0.04	0.02	0.01	0.02	0.01
	(0.09)	(0.09)	(0.09)	(0.09)	(0.02)	(0.02)	(0.02)	(0.02)
gdppc_lag	0	0	0	0	0	0	0	0
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
cycle_worldgdpcur_lag		0.107**		0.108**		0.02		0.02
		(0.04)		(0.04)		(0.02)		(0.02)
Constant	0.02	0.44	0.04	0.45	-0.17	-0.03	-0.17	-0.03
	(0.72)	(0.64)	(0.71)	(0.63)	(0.23)	(0.22)	(0.23)	(0.22)
N	135	135	136	136	135	135	136	136
R-squared	0.39	0.42	0.39	0.42	0.33	0.34	0.33	0.34

Robust standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%