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In 2008 all ECB publications feature a motif taken from the €10 banknote.

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Abstract

There is growing awareness that the distribution of IMF facilities may not be influenced only by the economic needs of the borrowers. This paper focuses on the fact that the IMF may favour geopolitically important countries in the distribution of IMF loans, differentiating between concessional and nonconcessional facilities. To carry out the empirical analysis, we construct a new database that compiles proxies for geopolitical importance for 107 IMF countries over 1990–2003, focusing on emerging and developing economies. We use a factor analysis to capture the common underlying characteristic of countries' geopolitical importance as well as a potential analysis since we also want to account for the geographical situation of the loan recipients. While controlling for economic and political determinants, our results show that geopolitical factors influence notably lending decisions when loans are nonconcessional, whereas results are less robust and in opposite direction for concessional loans. This study provides empirical support to the view that geopolitical considerations are an important factor in shaping IMF lending decisions, potentially affecting the institution's effectiveness and credibility.

Keywords: factor analysis, geopolitics, International Monetary Fund, potential analysis

JEL Classification: F33, H77, O19

Non-technical summary

This paper explores the hypothesis that some countries have "a *geopolitical* interest in diverting the IMF from the principles that normally governs its provision of financial support" (Mussa, 2002).

The IMF has recently been subject to particularly fierce criticism as many have argued that the institution is failing to fulfil its main objectives: The provision of emergency finance for the resolution of balance of payment crises and the surveillance of the world economy. Many of the problems the IMF is facing are rooted in its governance structure since the Fund is dominated by a rather narrow group of advanced economies. Accordingly, the governance issues raise questions regarding the fair distribution of IMF loans.

A large number of academic studies have then examined the determinants of the IMF's lending decisions. In the first half of the 1990s, researchers focused on the economic determinants of IMF loans (Joyce, 1992; Conway, 1994; Bird, 1995; and Knight and Santaella, 1997). In the second half of the 1990s, others have focused on other determinants such as political ones (Edwards and Santaella, 1993; Thacker, 1999; Vreeland, 1999; Bird and Rowlands, 2000; Przeworksi and Vreeland, 2000; Dreher and Vaubel, 2000; Vreeland, 2001; Dreher, 2004; Barro and Lee, 2005; Sturm et al., 2005; Harrigan et al., 2006; and Steinwand and Stone for a survey, 2007).

Our contribution is to define the concept and relevance of geopolitics in the context of the IMF and to investigate its influence on IMF lending. We collected and built various indicators that, according to the related literature, are subjects of geopolitical stakes. As Baldwin (1979) argues, there is no unique geopolitical variable. Indeed, geopolitics may concern many different areas, thereby implying that, depending on the area, the same country's geopolitical importance may switch from the highest to an insignificant level. Consequently, the geopolitical importance of a country is an unobservable variable. Nevertheless, it is possible to statistically extract the underlying factor of commonly known determinants of geopolitical importance and to capture its distribution over the globe. In a first step, we identify relevant geopolitical determinants and extract the underlying factor. In the second step, inspired by economic geography's recent findings (see Hanson, 2005), we compute a geopolitical potential, in the spirit of the Harris potential, by taking the country's geopolitical factor and the sum of others countries geopolitical factor over their relative distance. This technique allows us to have a geographical coverage when judging a country's geopolitical importance. In the third and last step, we estimate a function of IMF loans distinguishing between concessional facilities, i.e. the Poverty Reduction and Growth Facility (PRGF), and non-concessional facilities supported by the General Resources Account (GRA). This distinction is crucial since these facilities are most of the time pooled together in related studies. Yet, these loans are very different in terms of financial conditions but also in terms of conditionality and overall objective.

Our results provide empirical support to the view that geopolitical considerations are an important factor in shaping IMF lending decisions. Economic determinants are still valid for both facilities and turn out to play a bigger role for GRA. This is in a sense a reassuring result, since non-concessional facilities are very large loans. Moreover, we show that the Fund favoured geopolitically important countries when lending non-concessional facilities while concessional ones tend to be attributed to non-geopolitically important countries. Finally, we find evidence that the Fund is also favouring countries that are geographically close to geopolitically important countries.

1. Introduction

> "Some large IMF-supported programs raise concerns because they appear to suggest that a country's *geopolitical* importance [...] plays a role in IMF loan decisions", de Rato y Figaredo, IMF Managing Director between June 2004 and October 2007 (IMF, 2004).

> "It is important to recognize that when *geopolitical* considerations weigh heavily, the IMF tends to be diverted from the principles that normally govern its provision of financial support", Mussa, IMF Economic Counsellor and Director of the Department of Research from 1991 to 2001 (IMF, 2002).

Several Institutions were created after World War II in order to provide international public goods and deal with political and economic issues on a multilateral basis. More recently, the process of globalization has further underlined the usefulness of some of these organizations. Indeed, it is increasingly clear that the maintenance of international financial stability and global policy issues call for enhanced international cooperation.

The transfer of sovereignty from the country level to the international level has created tensions, however. Jackson (2003) argues that "in some of these circumstances (…) a powerful tension is generated between traditional core "sovereignty", on the one hand, and the international institution, on the other hand". This may be partly due to the fact that the multilateral approach has not always respected the principle of equal treatment (Mavroidis, 2000). Indeed, it is widely accepted that decision-making in international organizations tends to be dominated by a few large countries (see Stiglitz, 2002; and Vreeland, 2007; for a recent literature review on the International Monetary Fund (IMF) and Bown, 2005; Shoyer, 2003; and Steinberg, 2004; regarding the World Trade Organization (WTO)). First, the powers, i.e. quotas or voting shares, are not always equitably apportioned relative to country size. Second, some countries have means to influence others, and can then divert international organizations from their initial commitments. Steinberg (2004), for example, emphasizes the ongoing debate around the good functioning of the WTO dispute settlement body. He distinguishes studies that argue that the new system favours powerful members and encourages them to adopt a "rule breaking behaviour", from those arguing that the new system prevents these countries from behaving in such a way. Whatever the point of view, both assume that powerful members tend to

divert the institution from its governing principles, at the expense of other members, by using their relative economic size.

The IMF has recently been subject to particularly fierce criticisms. Many have argued that the institution is failing to fulfil its main objectives, namely the provision of emergency finance for the resolution of balance of payment crises and the surveillance of the world economy. Many of the problems the IMF is facing are rooted in its governance structure since the Fund is also dominated by a rather narrow group of advanced economies. According to Truman (2006), the IMF is enduring an "identity crisis" mainly caused by the imbalance of power among its members. As a result there are indications that a number of its members have lost faith in the institution.

These governance issues raise questions regarding the fair distribution of IMF loans. A large number of academic studies have examined the determinants of the IMF's lending decisions. In the first half of the 1990s, researchers have focused on the economic determinants of IMF loans (Joyce, 1992; Conway, 1994; Bird, 1995; and Knight and Santaella, 1997), while in the second half of the 1990s, others have focused on other determinants, such as political ones (Edwards and Santaella, 1993; Thacker, 1999; Vreeland, 1999; Bird and Rowlands, 2000; Przeworski and Vreeland, 2000; Vreeland, 2001; Dreher and Vaubel, 2004; Dreher, 2004; Joyce, 2004; Barro and Lee, 2005; Sturm et al., 2005 and Harrigan et al., 2006; and Steinwand and Stone for a survey, 2007).

The aim of this paper is to explore the hypothesis that some countries have "a geopolitical interest in diverting [the IMF] from the principles that normally govern its provision of financial support" (Mussa, ibid, and de Rato y Figaredo, ibid). To that end, the paper studies the geopolitical importance of loans recipients. After defining the concept and relevance of geopolitics in the context of an international organization with a particular focus on the IMF, we collected and built various indicators that, according to related literature, are subjects of geopolitical stakes. As Baldwin (1979) argues, there is no unique geopolitical variable. Indeed, geopolitics may concern many different areas, thus inducing that, regarding on the area, the same country's geopolitical importance may switch from the highest to an insignificant level.[1] Consequently, the geopolitical importance of a country is an unobservable variable.

[1] Baldwin argues that "Planes loaded with nuclear weapons may strengthen a state's ability to deter nuclear attacks but may be irrelevant to rescuing the Pueblo on short notice." (p. 164).

Nevertheless, it is possible to statistically extract the underlying factor of commonly known determinants of geopolitical importance of countries and to capture its distribution over the globe. We therefore proceed as follows: in a first step, we identify geopolitical determinants that may influence the distribution of IMF loans and extract the underlying factor of a larger range of these factors. In a second step, inspired by recent findings from economic geography (see Hanson, 2005), we compute a geopolitical potential *à la* Harris by taking the country's geopolitical factor and the sum of other countries' geopolitical factors weighted by their geographical distances. We also compute what we call a pure geopolitical potential of country's geopolitical importance by taking only into account the geopolitical geographic situation of the country (i.e. without taking into account its own geopolitical factor but only that of its neighbours over their distance). Using this technique allows us to have a full geographical coverage when judging of a country's geopolitical importance. In a third and last step, in line with existing literature, we estimate a standard model of determination of IMF loans distinguishing between concessional facilities, i.e. the Poverty Reduction and Growth Facility (PRGF), and non-concessional facilities supported by the General Resources Account (GRA). Regarding the latter, we focus on Stand-By Agreements (SBAs) and Extended Fund Facility (EFF) which share the largest part of overall IMF financing. This distinction is crucial since these facilities are different in terms of financial conditions and overall objectives. Yet, they are sometime pooled together in related studies or researchers focus only on GRA agreements. Since we focus on lending, and given that no industrial country has made use of the Fund's financial support for the last three decades, our panel comprises 107 IMF developing and emerging economies over the period 1990–2003 sampled at the yearly frequency.

Our results provide empirical support to the view that geopolitical considerations are an important factor in shaping IMF lending decisions. Economic and political determinants are still valid for both facilities and turn out to be more influential for SBA. Moreover, we show that the Fund favoured geopolitically important countries when lending non-concessional facilities. However, concessional loans tend to be attributed to non-geopolitically important countries, although to a lesser extent. Indeed, according to the literature on aid determinants, it is because bilateral aid flows are mainly determined by political and geopolitical determinants that international institutions have settled multilateral aid arrangements to support non strategic

countries that would not received bilateral aid otherwise (Burnside and Dollar, 2000). Overall, our results pass a large number of robustness checks including controlling for recidivism, and other econometrical specification of the factor analysis.

The remainder of the paper is organised as follows. Section 2 is devoted to the understanding of geopolitics, and its role within the IMF. Section 3 explains the choice of variables and the techniques. Section 4 describes the data and discusses methodological issues. Section 5 exposes the empirical results and the robustness checks. Finally, Section 6 concludes.

2. Geopolitics and International Organizations: What about the IMF?

There is a vast literature on the economic and political determinants of IMF lending decisions (see also section 4 below). However, the question of whether some countries may have a geopolitical interest in shaping the Fund's decisions has, to our best knowledge, received much less attention. In this paper, we put forward the hypothesis that leading members of international organizations use the institution's prerogatives to increase or serve their influence over other members for geopolitical purposes. Boughton (2004) supported the view that IMF involvement in the Eastern European countries was not purely financially driven, but rather ideological by ultimately encouraging the superiority of the market economy. In the same vein, Marchesi and Sabani (2007) show that because of the lack of credibility of the Fund, i.e. regarding the borrowing country's non-compliance with conditionality, lending may be distorted for reputation issues. As a result, creditors (i.e. the G7 members) may use the Funds' financing facilities to increase or serve their influence over debtors.

Diverting the IMF, for geopolitical purposes, from its principles to serve particular interest is possible since decisions to lend are taken by the Executive Board (the Board). The Board is responsible for conducting the day-to-day business of the IMF. It is composed of 24 Directors, who are appointed or elected by member countries or by groups of countries, and the Managing Director, who serves as its Chairman. The Board usually meets several times a week and carries out its work largely on the basis of papers prepared by IMF staff. Decisions are officially voted, but in practice, Directors never vote. The Chairman evaluates the positions of Directors following their interventions and passes a decision when a consensus seems to be reached.

Therefore, it is straightforward that, if some countries are better negotiators or have means to influence others, they can succeed in influencing the Board's decisions. Alonso-Meijide and Bowles (2005), Bini Smaghi (2004, 2006a, 2006b), Leech (2002) and Reynaud et al. (2007) have illustrated this using voting power indices derived from cooperative game theory and found that the US and the Group of 7 are over influential at the Board.

Therefore, in studying the determinants of IMF loans, researchers have focused on particular factors that might be of interests for leading IMF members. For example, Thacker (1999) found that a move towards the US position of the borrowing country is positively related to the probability of receiving a loan. Oatley and Yackee (2000) found that the more US banks are exposed in the borrowing country, the larger the loan. Finally, Oatley (2002) found that commercial bank debt of G7 countries into the borrowing country influences the size of the loan.

Others have focused on country specificities such as political stability (Edwards and Santaella, 1993), political freedom (Rowlands, 1995) and democracy indicators (Thacker, 1999; Vreeland, 1999; Dreher and Vaubel, 2004). They found that the more borrowing countries are close to cultural and political standards in developed countries, the higher the probability to receive IMF funds.

More recently, IMF staff has argued that some members are influencing the distribution of loans because of particular geopolitical interest in the borrowing country. We begin by introducing hereafter a rather heuristic definition of geopolitics:

> "Geopolitics traditionally indicates the links and causal relationships between political power and geographic space; in concrete terms it is often seen as a body of thought assaying specific strategic prescriptions based on the relative importance of land power" (Osterud, 1988).

Geopolitics has then to be related to the importance of land power: the size, the position in the World, the resources that are natural and built by man. The conversion of 'land power' into 'political power' is however not straightforward. In the context of International Politics, Baldwin (1979) and Nye (1990) developed the following seminal argument:

> "Some countries are better in converting their resources into effective influence, just as some skilled card players win despite weak hands" (Nye, 1990)

This idea, already mentioned by Baldwin (1979) as one of the two reasons[2] explaining "the paradox of unrealized power", refers to the fact that a country with resources identified as strategic does not necessarily succeed in being powerful. According to Baldwin, this country has the resources but has not the knowledge to use it in order to convert them into power. Similarly, some countries have no resources but have means to convert strategic resources into power. Then, the latter are interested in using resources of the former. A good example is the importance of oil reserves. Indeed, these reserves do not provide wealth at the moment but *may* in the future. Moreover, they may provide wealth and thus political power at the domestic level if they are exploited domestically; but could also be appropriated externally and lead to a misdistribution of wealth, i.e. corruption (see the literature on the resource curse: among others Leite and Weidmann, 2003; Sala-i-Martin and Subramanian, 2003; Isham et al., 2004; Mehlum et al., 2006; and Dietz et al. 2007). However, these reserves provide geopolitical power as of today since most (of industrial) economies are dependent and do not posses large initial endowments.[3] Finally, there is a last group of countries, mainly those that have both the know-how and the resources (or the control of other countries' resources). They represent the dominant countries and try to maintain this domination by protecting other countries' resources. The fact that they dominate has allowed them to obtain a great importance in the (recently created) International Organizations. Indeed, as argued by Popke (1994), the role of the IMF "has increasingly come to be scripted through the discourse of US security". Moreover, "the IMF itself draws on discourses, in order to script the role of the countries with which it interacts (…). The IMF disseminates a form of power/knowledge by casting itself as the sole authority over a wide range of issues". Popke finally argues that this power influence also IMF's surveillance and structural adjustment programs.[4] The aim is therefore to deflect "blame for monetary problems away from the industrialized nations and onto the nations of the third world".

This leads to the idea that IMF loans, the country chosen, the amount lent and the level of conditionality of loans could be used by creditors to control or to appropriate strategic resources from debtors. The distinction between the use and the possession

[2] The other one is the already mentioned bad estimation of what creates power.
[3] We do not focus on the measurement of country's ability to transform strategic resources into effective power. Also, we believe that this could be of some interest to study it in correspondence with the ability of this country to be listening in international fora.
[4] See Fratzscher and Reynaud (2008) for a study on the influence of political power on IMF surveillance.

of resources is then representative of what makes the difference between politics and geopolitics, and justifies the hypothesis just above. The objective of this paper is first, to identify what factors could make some countries geopolitically attractive to IMF creditors and second to assess empirically whether these factors influence the probability to receive IMF financial support.

3 Geopolitical determinants of the importance of nations

3.1 Methodological issues

In this section we attempt to identify relevant proxies for some of the key factors that determine the geopolitical importance of nations. Listing all the sources of geopolitical importance is a difficult task. The search for determinants of country's geopolitical importance faces in our view two main constraints. First, one should not search for *a* determinant, neither for *some* determinants, but rather for *a range of interacting* determinants. Indeed, as Baldwin (1979) argues, there is no unique geopolitical variable. Geopolitics may therefore concern many different areas. Keeping this in mind, we attempt to propose a statistical analysis of the geopolitical determinants which deals with this issue, namely a *common factor analysis*. Factor analysis is used to study the patterns of relationship among many variables, with the goal of discovering something about the nature of the underlying common factor that affects them, even though those variables were not measured directly. In our case, measuring directly the geopolitical importance of a country is not possible. In a factor analysis, this will refer to the inferred independent variable, i.e. the factor. In other words, factor analysis looks for the factors which *underlie* the variables. It is therefore useful for our study since we do not pretend to propose an absolute definition or an index of the geopolitical importance of countries, but rather extract an underlying factor behind a wider range of determinants as possible.[5] More formally, with x_i an observation, the factor analysis states that, with i=1,2…,p:

$$x_i = \sum_{r-1}^{k} l_{ir} f_r + e_i \qquad (1)$$

where f_r is the common *r-th* vector, k is specified and e_i is a residual that represents sources of variation affecting only x_i. In other words, if a correlation matrix can be explained by a general factor, it will be true that there is some set of correlations of

[5] Proposing an index is inappropriate since it induces to arbitrary weight the variables entering it.

the observed variables such that the product of any two of those correlations equals the correlation between the two observed variables. The method we used to estimate the geopolitical factor (*gf*) is the "regression estimator" (Thomson, 1951). Formally, it has the following form (Kosfield and Lauridsen, 2006):

$$gf_T = \Lambda'(\Lambda \cdot \Lambda' + \Sigma_u)^{-1} X' = (I + \Lambda' \Sigma_u^{-1/2} \Lambda)^{-1} \Lambda' \cdot X' \quad (2)$$

Where Λ is the factor matrix, Λ' is given by $\Xi = F \cdot \Lambda'$, with the left hand side being the matrix of the "true" regressor values. The matrix of observations *X*, is then given by the following equality: $X = \Xi + U$, where *U* stands for the errors matrix. That is, if we refer to *(1)*, it is the matrix of the e_i. Finally, the last term to define is the covariance matrix of unique factors u_j, given by: $\Sigma_u = diag(\sigma_{u_1}^2 \sigma_{u_2}^2 ... \sigma_{u_p}^2)$. The product $\Lambda\Lambda'$ is the cross-factors matrix of the Λ with each other.

Regarding the structure of the factor, two questions arise: How many factors should we use? How many variables should we use? Darlington et al. (1973) expose a simple rule: The fewer factors, the simpler the hypotheses. Since simple hypotheses generally have logical scientific priority over more complex ones, hypotheses involving fewer factors are considered to be preferable to those involving more factors. That is, one accepts at least tentatively the simplest hypothesis (i.e. involving the fewest factors) that is not clearly contradicted by the set of observed correlations. So that the clearer the true factor structure, the smaller the sample size needed to discover it. Thus, the rules about number of variables are different for factor analysis than for regression, i.e. it is perfectly acknowledged to have many more variables than cases. In fact, the more variables the better as long as the variables remain relevant to the underlying factor. Regarding the number of factors to be selected, we will display model-selection criteria, the Akaike (AIC) and the Bayesian (BIC) information criteria.[6] We will also run maximum-likelihood tests. Each model will be estimated using maximum likelihood, and thus will permit to select the best Log likelihood ratio. We will also display the Kaiser-Meyer-Olkin measure of sampling adequacy that permits

[6] AIC and BIC information criteria are generally used to compare alternative models. These criteria penalize models with additional parameters. The AIC is defined as (-2*log-likelihood + 2*number of parameters) and the BIC as (-2*log-likelihood + number of parameters * number of observations). Comparing models permit to order selection criteria based on parsimony.

to discriminate whether overall variables have enough in common to warrant a factor analysis.[7]

The second constraint in dealing with the geopolitical importance of a country is related to the fact that one should not only take into account the geopolitical importance of this country, but rather its importance and the importance of its neighbours, i.e. its geographical position. Indeed, while dealing with geopolitics, one should not omit the importance of the region and the importance of geographic relations between states. For example, one could not ignore the geopolitical importance of Turkey given by its geographical situation between Europe and the Middle-East. Keeping this in mind, we attempt to deal with this inconvenience by proposing an additional statistical analysis of the geopolitical determinants, namely a *potential analysis*. We bring together the concept of geopolitical importance of states and the potential analysis taken from International Economics. Generally, in the location decision analysis (of FDI for example), a variable labelled market potential is presented. This idea is related to Harris' (1954) influential market-potential function, which states that the demand for goods produced in a location is the sum of purchasing power in other locations, weighted by transport costs. The concept was later strengthened by Fujita, Krugman, and Venables (1999) stating that nominal wages are higher near concentrations of consumer and industrial demand (Hanson, 2005). In this paper, we adapt this concept adding to country's factor the scores of its neighbours to their distance. By doing so, we are able to catch both the geopolitical importance of a particular country and also its geopolitical importance given its geographical situation. Formally, the geopolitical potential of a country is computed as follows:

$$gp_{it} = \sum_{i=1}^{n} \frac{gf_{it}}{d_{ji}} \qquad (3)$$

where gp_{it} is the geopolitical potential of country i, gf_{it} is the geopolitical factor of country i as calculated in *(2)* and d_{ji} the relative distance in kilometres between country j and i. However, due to (i) the large number of countries in our database and (ii) the weak magnitude of the factors compared to that of the bilateral distance, *(3)* is expected to be correlated to *(2)*. Therefore, we compute *(3)* without taking into

[7] The KMO measure of "fit" is an index for comparing the magnitudes of the observed correlation coefficients to the magnitudes of the partial correlation coefficients.

account the geopolitical factor of the borrowing country but only the weighted sum of its neighbours and call it the pure geopolitical potential (gpf_{it}):

$$gpf_{it} = \sum_{j \neq i} \frac{gf_{jt}}{d_{ji}} \qquad (4)$$

Anticipating next section in which define our factor, we perform a pairwise correlation tests between gf_{it} and gp_{it} and between gp_{it} and gpf_{it} to confirm that correlation levels are 0.46 and 0.99 respectively, significant at the 1% level (*Cf*. table 1).

Table 1: Correlation analysis of geopolitical factor, potential and pure potential

	Geopolitical factor	Geopolitical potential	Pure geopolitical potential
Geopolitical factor	1.000		
Geopolitical potential	0.4617	1.000	
Pure geopolitical potential	0.4095	0.9966	1.000

3.2 Variables entering the geopolitical factor

Variables proxying the geopolitical importance of countries may be classified in 4 areas as follow: (i) the energetic, (ii) the nuclear, (iii) the military and (iv) the geographical areas.

3.2.1 Energetic area

Capturing the relative importance of land power refers directly to energetic resources. Of course, many resources might be useful in building a geopolitical factor, but we are here interested in resources that are/might be strategic since we are searching for potential power.[8] In this case, oil and gas resources appear to be fundamental. For example, Rose (2007) uses oil and gas proven reserves as proxies of geopolitical importance of country in a gravity equation to study bilateral trade. Moreover, more than 90% of world's energetic rent comes from oil and gas (Eifert et

[8] A general concern has also been to include variables proxying the geopolitical importance of countries that do not influence temporaneous the economy, i.e. to escape endogenoeity issues when turning to the econometric modelling.

al., 2003). In that spirit, we use the data on oil and gas proven reserves, rather than actual oil and gas production, to capture countries' potential rent as we argued above that what matters is rather the (unexploited) potential. One needs also to take into account, for strategic purposes, the country's ability to transport these resources. Indeed, it is sometimes the case that a country is geopolitically important not because it owns large resources but because they need to transit via this country to be exported. Therefore, we use also oil and gas pipelines since they are expected to proxy countries' ability to transport energy for internal or external purposes.

We expect the endowment in reserves and pipelines to influence positively in the probability of obtaining IMF money. Indeed, regarding oil reserves, we rely on related literature, in particular Harrigan et al. (2006), advocating that countries with larger oil and gas reserves receive substantially more financial support since IMF creditors may be interested in exploiting these resources. Finally, we expect the possession of large pipelines infrastructures to increase the probability of obtaining an IMF loan since they facilitate the transportation of national or foreign resources, and therefore should be subject to protection or to appropriation.

3.2.2 Nuclear area

After having proxied countries' energetic importance, we should also take into account countries' endowment in nuclear energy. Indeed, Mussa (1999) provided quite a clear answer to whether one should take into account nuclear power of countries by writing that "many thought that Russia was too important - too nuclear - to be allowed to fail". What makes this resource special is that it is at the cross-section between energetic and military powers. Therefore, we computed a variable accounting for the size of civil nuclear capacity and a dummy variable to capture whether a country has the nuclear weapon.

The impact of these variables on the probability to obtain an IMF loan is ambiguous. On the one hand, the non allocation of an IMF loan may be seen by dominant countries willing to retain their position as a tool to counteract the rising power of nuclear powers. On the other hand, the international community may be interested in ensuring the economic stability of nuclear powers in order to reduce the risk that they use their weapons. Additionally, the possession of nuclear weapons may increase countries' bargaining power in the international arena, and therefore their ability to "lobby" to obtain an IMF loan. Jo and Gartzke (2007) study the determinants of nuclear weapons proliferation and found that signatories to the Treaty

on the Non-Proliferation of Nuclear Weapons are less likely to initiate nuclear weapons programs, but that has not deterred proliferation at the system level. Moreover, they found that the United States hegemony has the potential to encourage nuclear proliferation since the US appears much more willing to intervene, advocating in our case for a positive relation between the allocation of loans and the nuclear capacity of countries.

3.2.3 Military power

Within the notion of geopolitics lies the concept of military power. Indeed, at its very start, the discipline gained attention largely through the work of Sir Halford Mackinder and his formulation of the Heartland Theory in 1904. This theory hypothesized the possibility for a huge empire to be brought into existence which did not need to use coastal or transoceanic transport to supply its military industrial complex, and that this empire could not be defeated by all the rest of the world coalitioned against it.[9] To proxy the military importance of countries, we use three variables: First, we needed to proxy the military potential of a country for domestic and regional purposes. A first indicator could be the number of local soldiers or even a proxy of the military budget. However, as we already mentioned one of our concern is to include variables that do not influence temporaneous the economy. In this spirit, we collected the number of US soldiers established in the borrowing country. We focus only on the US army because of its global military importance and because the US dominates the Fund's decision making process (as exposed in the previous section). Second, we needed to control for conflicts and the deployment of multilateral forces since conflicts usually deter inflows of aids to the country. For instance, Kuziemko and Werker (2006) found a significant and negative sign of a variable equal to 1 if war during which more than 1000 people died has occurred when explaining the amount of UN foreign aid. We collected therefore the United Nation Peacekeeping military strengths established in the borrowing country. Third and lastly, we built a weighted index of countries' involvement in Non-Proliferation Treaties (NPT) in order to provide a measure of the international "good willing". We constructed this index by collecting data for all the international Treaties (13), excluding regional ones. If a country has implemented a Treaty, then it is coded 1, 0 otherwise. To appreciate the proximity between each country and the International

[9] Nye (1990) also argues that ability to win a war is the historic source of power. Military power is still a factor explaining power in spite of the rise of other factors such that economic growth or technology.

Community, we weight each Treaty, year by year, by its relative importance. The latter is given by the number of depositors (implementation of the Treaty) divided by the total number of depositors for all NPT. Therefore, the more a Treaty has been implemented by other countries, the more it contributes to the index. For example, the Geneva Protocol, created in 1925, has a weight of almost 16.5% in the index in 1990. The Mine Ban Convention, signed in 1997 (so it has no weight for the first 7 years of the data) has a weight of 9.9% at the end of the period. However, the Geneva protocol weight has lost 7 percentage points in 1997. Moreover, the NPT related to nuclear weapon loses less weight than the Geneva protocol does (from 19% to 13%). Finally, the weight of some Treaties like the Certain Conventional Weapons Convention present at the beginning of the period has increased at the end of the period, thus implying there is not a bias in favour of recently created Treaties.

We expect IMF loans to be positively correlated with these military factors. Indeed, the US troops variable exhibits the geopolitical importance for the US, and thus for an important number of US allies (El Kathib and Le Billon, 2004). We expect the US and its military allies to influence loan decisions in order to favour countries where their troops are present. Regarding the NPT index, the effect of the variable relating to NPT is more ambiguous. On the one hand, signing such treaties signals countries' cooperative behaviour and submission to an "international rule of law" which may impact positively on the odds of obtaining an IMF loan. On the other hand, their participation in such a treaty reduces their threat to the world. In this context the international community may be less interested in ensuring the economic stability of such countries through the concession of an IMF program. Finally, we have no predefined expectations regarding the UN strength proxy since this variables is more a control variables than a determinant.

3.2.4 Geographic area

Finally, we also need to take into account the pure geographic characteristics of countries. In this part, we use traditional proxies of geographic importance of countries (see among others Ades and Chua, 1997; Van Houtum, 2005; Bernholz, 2006): The area in kilometre squared to proxy the physical size of the country. To proxy whether the country is not just filed with deserts or mountains and if this country has important transportation capacities, we collected the length of the roads and the length of the coast lines. Finally, and central to the geopolitical analysis, we also use the number of borders to appreciate the centrality of countries. All these

variables are supposed to capture size as well as geographic determinants of transportation ability within the country. They are thus all expected to influence positively on the probability to receive IMF loans.

3.3 Description of variables entering the geopolitical factor and outcome of the factor analysis

Units and the sources of collected data entering the factor analysis are reported in Table 2 below. Table 3 reports the outcome of the factor analysis and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy to determine the fit of our factor regarding variables entering the sample. We also report in table 3 a column with correlation of the variables with the factor. Not surprisingly, the only variable poorly correlated is the UN military strength variable as discussed before. The KMO fit is rather good and is classified as 'meritorious' with a value over 0.8, from a scale ranging from 0 to 1. Finally, we also report Akaike (AIC) and Bayesian (BIC) information criteria (see table 4). They both, together with the Eigen values, advocate for the use of a single factor. Not reported here, we also ran maximum-likelihood tests on the adequate number of factors. The latter suggests that a one factor model provides an adequate model and will therefore represent what we call the geopolitical factor of countries.

Table 2: Description of the variables entering the factor analysis

Variable	Observations	Mean	Std. Dev.	Min	Max	Unit	Source
Oil reserves	1568	6.14	21.13	0	132.46	Billion Barrels	Oil & Gaz Journal and BP Statistical Review
Gaz reserves	1568	39.28	183.78	0	1680,00	Trillion Cubic Feet	
Oil pipelines	1568	2183.57	7199.54	0	72283	Kilometers	CIA World factbook
Gaz pipelines	1568	4844.36	17177.70,	0	156285	Kilometers	
Civil nuclear capacity	1568	759.11	3087.74	0	21743	MWe	Nuclear Energetic Agency
Poession of nuclear weapon(s)	1568	0.16	0.37	0	1	Dummy: 1 if posseses nuclear weapon. 0 if not	International Energetic Agency (author computation)
Number of US military troops	1651	504.52	3590.62	0	41344	Number of soldiers	US Department of Defense
UN military strength	1568	575.02	3390.62	0	38599	Number of soldiers	United Nation Peacekeeping Department
NPT index	1568	0.61	0.24	0	0.9930502	Index (0 to 1)	United Nation Organization
Length of roads	1568	117654.40	429089.70	12	3851440	Kilometers	
Area	1554	848394	2037358	431	17100000	Kilometers squarred	CIA World factbook
Number of borders	1568	4.14	2.63	0	17	Unit	
Length of coastlines	1568	2473.05	7199.35	0	54716	Kilometers	

Table 3: Factor selection criteria: Kaiser-Meyer-Olkin test

Variable	Kaiser-Meyer-Olkin measure of sampling adequacy	Correlation with factor
Oil reserves	0.7911	0.8964
Gaz reserves	0.8117	0.8626
Oil pipelines	0.8670	0.8677
Gaz pipelines	0.8711	0.8641
Civil nuclear capacity	0.7294	0.4356
Possession of nuclear weapon	0.8273	0.5076
Number of US military troops	0.6443	0.1641
UN military strength	0.3833	-0.0481
NPT index	0.6468	0.1371
Length of coastlines	0.8384	0.3090
Area	0.7550	0.5027
Length of roads	0.8322	0.4402
Number of borders	0.6016	0.2610
Overall	0.8015	-

Table 4: Factor selection criteria: AIC and BIC

Factor n°	Eigenvalue	Difference	Proportion	Cumulative	Log. Like,	DF m	DF r	AIC	BIC
Factor1	4.35512	3.39043	0.7019	0.7019	-1553.667	14	77	3135.335	3206.157
Factor2	0.96469	0.17876	0.1555	0.8574	-960.8392	27	64	1975.678	2112.265
Factor3	0.78593	0.28186	0.1267	0.9841	-583.487	39	52	1244.974	1442.266
Factor4	0.50407	0.22034	0.0812	1.0653	-330.9682	50	41	761.9363	1014.874

4. Data and methodological issues

4.1 The data: description of the independent and dependent variables

4.1.1 Independent variables

Variables entering the geopolitical factor, the geopolitical potential and the pure geopolitical potential have been described in the previous section. When estimating the probability of receiving IMF loans and the determinants of the size of these loans, one should control for economic and political determinants that have been identified as determinants of IMF lending in related studies. Sturm et al. (2005) used an Extreme Bound Analysis to discriminate between economic and political determinants of IMF loans using a panel model for 118 countries over the period 1971–2000. They found three robust economic variables explaining the distribution of IMF loans: The ratio of international reserves to imports of goods and services in current US$, the growth of real GDP and the log of GDP per capita at market prices. The ratio of total debt service to exports of goods and services is also found to be significant but to a lesser extent. We build therefore our baseline model upon their findings and include these variables in our estimations.[10] The expected sign of the reserves to imports ratio and the growth rates is negative since a low reserve to imports ratio increases the risk of meeting balance of payments difficulties and a country experiencing high growth rates is less subject to economic difficulties, respectively. Regarding the GDP per capita variable, a higher ratio means a higher level of economic development and therefore less need for financial support. Finally, the debt service to exports ratio is expected to be positively linked since a heavy debt burden relative to exports increases countries' need for external finance to service that debt. All economic data are taken from the International Monetary Fund International Financial Statistics database.

To control for political factors influencing IMF lending decisions is an important robustness check to analyse the potential robustness of our measure of geopolitical importance. Indeed, the recent empirical studies on political influences on the IMF have shown that countries voting with the US in the UN General Assembly receive better treatment from the IMF (Barro and Lee, 2005; Dreher and Sturm, 2006; Dreher, Sturm and Vreeland, 2006; Dreher, Marchesi and Vreeland, 2007) since Kuziemko and Werker (2006) have recently demonstrated that the pattern of US aid payments to

[10] We have also run our estimations with additional economic variables (current account balance and total external debt) but too many observations were lost due to the lack of data. They are available upon request to the authors.

rotating members of the UN council is consistent with vote buying. They argued that non-permanent members of the U.N. Security Council receive extra foreign aid from the United States and the United Nations, especially during years when the attention focused on the council is greatest. Relying on the data used by Dreher and Sturm (2006), we introduce several definitions of alignment of countries within the UN assembly to US, France, the UK and more broadly the G-7 countries as a group. We also include a dummy controlling for temporary membership in the UN Security Council as in Kuziemko and Werker (2006) for the US and Dreher, Sturm and Vreeland (2006) for the IMF.

Moreover, Przeworski and Vreeland (2000) and Dreher and Vaubel (2004) study the allocation of an IMF loan around election time and found significant results. The former suggest that governments are more likely to enter an agreement early in the election term, hoping that any perceived stigma of signing an agreement will be forgiven or forgotten before the next elections. In other words, demand for IMF credit might be higher after election years. Dreher and Vaubel (2004) suggest that the availability of IMF credit might indirectly help to finance electoral campaigns.

Finally, two dimensions are to be taken into account. First, Przeworski and Vreeland (2000) and Bird and Rowlands (2000) argued that countries with more unstable and polarized political systems will have more difficulties to arrange a credible adjustment program and will, therefore, have a higher incentive to turn to the Fund. They also suggest that the IMF could prefer lending in general to countries with good governance. These results are confirmed by the analysis of Sturm et al. (2005). We include therefore different proxy of government stability, political opposition and government fractionization of political power using the database of Political Institutions of the World Bank.[11] Second, IMF loans have been found to be rather persistent (Bird, 1996; IEO/IMF, 2002), i.e. the likelihood of an additional loan could be determined in part by past loans. We therefore capture this high degree of persistence in IMF involvement as in the related literature (see between others Przeworki and Vreeland, 2000, Hutchison and Noy, 2003; Sturm et al., 2005) using the lag of a 3-year moving average of a dummy indicating whether or not a country was under an agreement.

[11] Government stability counts the percent of veto players who drop from the government in any given year. Political opposition records the total vote share of all opposition parties. Finally, government fractionization is the probability that two deputies picked at random from among the government parties will be of different parties (World Bank, DPI2006).

4.1.2 Dependent variables

IMF loans are granted to ease the adjustment policies and reforms that a country must make to correct its balance of payments problem and restore conditions for strong economic growth. They are mainly provided under an "arrangement", which stipulates the specific policies and measures a country has agreed to implement to resolve its balance of payments problem. The economic program is presented to the Fund's Executive Board in a *Letter of Intent*. Over the years, the IMF has developed various facilities to address the specific circumstances of its diverse membership. More specifically, IMF finance is divided into two resources account: First, the concessional loans allow low-income countries to borrow through the Poverty Reduction and Growth Facility (PRGF) and the Exogenous Shocks Facility (ESF). Second, non-concessional loans are provided mainly through Stand-By Arrangements (SBA), and occasionally using the Extended Fund Facility (EFF), the Supplemental Reserve Facility (SRF), and the Compensatory Financing Facility (CFF). The IMF also provides emergency assistance to support recovery from natural disasters and conflicts, in some cases at concessional interest rates. Except for the PRGF and the ESF, all facilities are subject to the IMF's market-related interest rate and some carry a surcharge (mainly for large loans). The rate of charge is based on the Special Drawing Rights interest rate, which is revised weekly to take account of changes in short-term interest rates in major international money markets. The amount that a country can borrow from the Fund varies depending on the type of loan, but is typically a multiple of the country's quota. The limit is fixed according to the Articles of Agreements to 100% of the quota per year and 300% on a cumulative basis of 3 years regarding the SBA for example. Of course, these limits can be extended in special occasions. For example, South Korea and Turkey got more than 1500% of their quota during financial distress, respectively in 1997 and in 1999/2000.

Since we focus on lending and given that industrial countries have not made use of the Fund's financial support for the last three decades, our panel comprises 107 IMF developing and emerging economies over the period 1990-2003 sampled at the yearly frequency.[12] 299 agreements have been agreed accounting for over 237,633,199 thousands of SDR and 255 agreements have been drawn accounting for over 160,956,076 thousands of SDRs. Table 5 below shows descriptive statistics for our

[12] While some related studies used a longer time frame, our sample starts in 1990 to limit potential structural breaks before the 1990s.

dependent variables. Overall, agreements are slightly equally distributed between SBA and PRGF, 46% and 42% of total loans respectively as shown in Chart 1 (in bars) below. However, looking at the amount lent, Chart 1 (in lines) exhibits the sheer size of SBA compared to PRGF. Indeed, SBA represent more than 80% of total amount, compared to 6% for PRGF. This distinction has some economic bases since PRGF are oriented to support low-income countries, and therefore their needs are much less important than emerging markets. Interestingly however, the amount and the number of PRGF are increasing over time. We will therefore focus on SBA and EFF for non-concessional loans and on PRGF for concessional ones given their sheer size. Finally, looking at the regional distribution of loans is also quite informative. Table 6 below represents the percentage of numbers of SBA (in black) and of PRGF (in grey) to total IMF loans per region over our sample period. Interestingly, we notice that the bulk of SBA drawn are in direction of Europe (including Turkey), Asia and South America, whereas PRGF drawn are mainly oriented to support African countries.

Our dependent variables are therefore constructed as the ratio of the amount of IMF loans agreed to the borrowing country's quota. The data were retrieved from the IMF website which recently made available online an increased level of data on financial agreements.

Table 5: Description of the dependant variables
(SDR for program size)

	Stand-by Agreements		Extended Fund Facility		Poverty Reduction and Growth		Structural Adjustment	
	Agreed	Drawn	Agreed	Drawn	Agreed	Drawn	Agreed	Drawn
Programs sum	188 561 431	131 343 846	34 877 525	19 369 402	13 910 293	9 996 578	283 950	246 250
Programs sum / Total lent over the period 1990-2003	79,3%	81,6%	14,7%	12,0%	5,9%	6,2%	0,1%	0,2%
Mean (for borrowing countries)	1 201 028	1 113 083	1 125 081	744 977	130 003	93 426	70 988	61 563
Mediane (for borrowing countries)	100 000	86 770	353 160	144 625	73 380	51 890	40 040	29 090
Standard deviation (for borrowing countries)	3 726 691	3 097 080	1 610 927	1 203 137	160 870	126 356	74 717	82 527
Number of programs	157	118	31	26	107	107	4	4
Number of programs / Total programs over the period 1990-2003	52,5%	46,3%	10,4%	10,2%	35,8%	42,0%	1,3%	1,6%

Chart 1: Evolution of the relative total amounts and numbers of SBA and PRGF

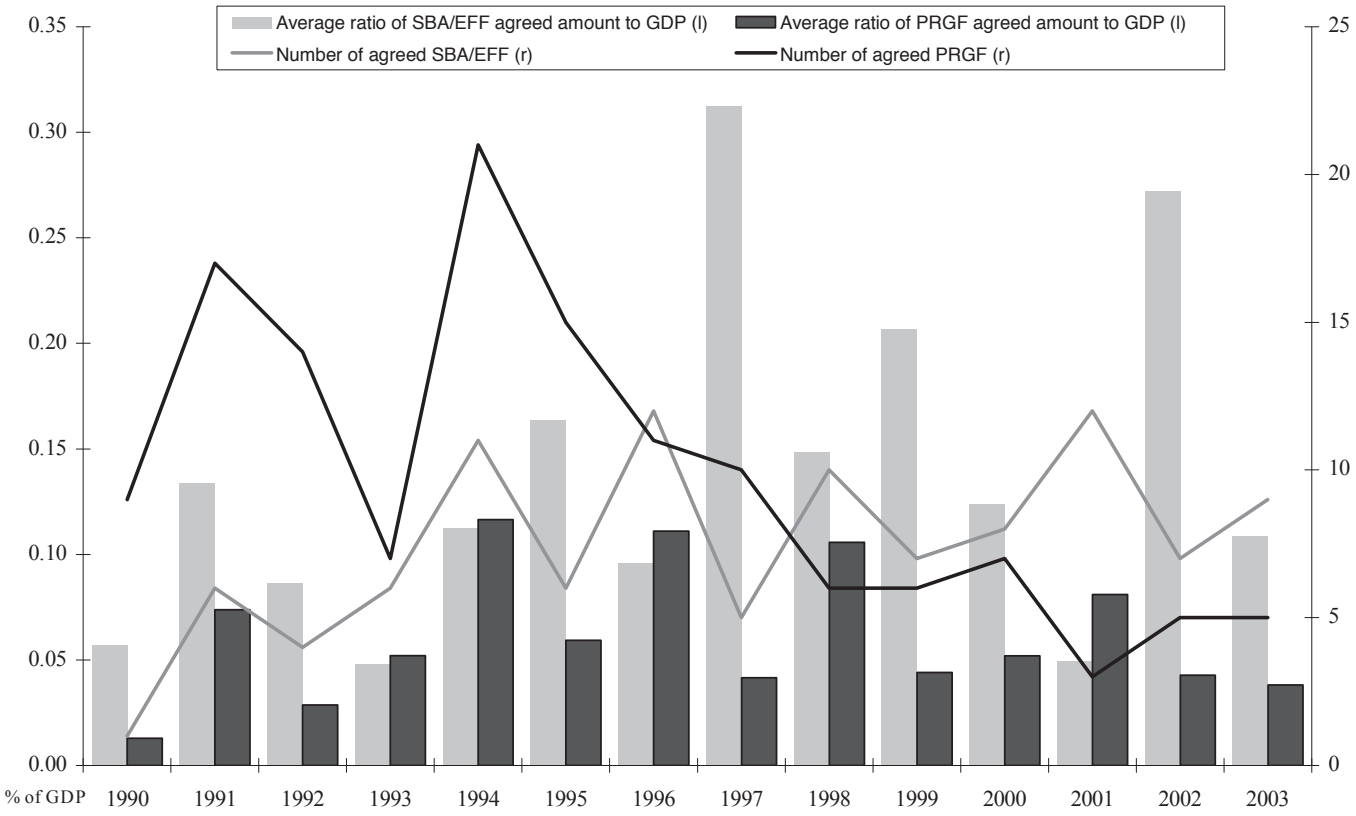

Table 6: Geographical location of the recipient countries

Region	Programs		Amounts	
	SBA/ EFF	PRGF	SBA/ EFF	PRGF
Africa	21.3%	62.5%	2.1%	51.7%
Asia	7.8%	14.4%	18.4%	33.9%
Eastern Europe	29.1%	14.4%	13.5%	7.8%
Middle East	5.7%	0.0%	13.6%	0.0%
South America	36.2%	8.7%	52.4%	6.6%
Total	100.0%	100.0%	100.0%	100.0%

4.2 Methodology issues

Our panel is unbalanced with a total of 1523 observations. As described above, our dependent variables are by definition left censored to 0 and uncensored on the 'right side'. This calls for a censored regression model such as the Tobit estimator. The model is therefore specified hereafter, as in Barro and Lee (2005):

$$L_{it}^{*} = \alpha + \beta X_{it} + \delta G_{it} + \gamma * T_{t} + \mu_{it} \quad (5)$$

$$L_{it} = \max\left[0, L_{it}^{*}\right] \quad (6)$$

where the dependent variable, L_{it},, is the loan-size variable for country i during period t. L_{it}=0 if the country did not have a loan agreement with the IMF during period t. The vector X_{it} denotes the country-specific economic macro-aggregates that influence the existence and size of IMF programs. As discussed before, this vector includes the ratio of foreign reserves to imports, debt service to exports, per capita GDP and GDP growth. The regression also includes time dummies to control for common effects of external factors such as world interest rates. G_{it} contains the measures of country's geopolitical importance as discussed in section 3. It includes: First, the geopolitical factor of countries gf_{it} ; second, their geopolitical potential gp_{it} and pure geopolitical potential gpf_{it} . Finally, the variable μ_{it} is a random error term.

Equation *(5)* can be viewed as a reduced-form model for IMF loans from a debtor's perspective. To minimize reverse-causality problems, all explanatory variables are measured as lagged values. Some variables enter as their log values to deliver the best

goodness-of-fit.[13] Moreover, we use random-effects specifications for the error term since the probability that a country is favoured by the IMF during one period is likely to be persistent over time, i.e. there is great deal of recidivism in IMF lending practices as argued by Bird (1996). This assumption is supported by econometrical tests shown in the last section of the paper. Finally, the Breusch and Pagan Lagrangian multiplier test indicates that for SBA, our sample shows some heteroskedasticity. We may therefore produce robust variance estimates of marginal effects.

5. Estimation results

5.1 Core results

Core results are shown in table 7. In each table, we estimate separately models of supply for agreed and drawn amounts of SBA/EFF and PRGF. Due to missing observations in some explanatory variables, our estimations cover generally 98 out of the 107 countries in our sample. We extend our sample back to 107 countries in the robustness section below. Regarding the economic model (odd columns) for SBA/EFF, countries experiencing relatively weak growth in real GDP are found to receive more credit as expected. Indeed, the estimated parameters are found significant at the 1% level and negative for SBA/EFF as in Sturm et al. (2005). Moreover, the positive relation between IMF lending and GDP per capita may reflect the Fund's reluctance to provide stabilization loans to countries that are not creditworthy (Barro and Lee, 2005). As argued by Knight and Santaella (1997), countries experiencing relatively low levels of international reserves relative to imports are found to receive more IMF credit. Indeed, these countries will be less able to meet balance of payments difficulties through reserves use. Finally, a heavy debt burden relative to exports increases countries' probability to be financially supported to service that debt. As in Rowlands (1995), we found this estimated parameter significantly and positively related for SBA/EFF.

The picture is however reversed and less robust for the PRGF, at least for GDP growth and per capita GDP. Indeed, the parameter estimated of per capita GDP is significant and negative. In accordance to Knight and Santaella (1997), we find that poor countries are more likely to be financially supported. Indeed, these countries

[13] The results are not sensitive to the specific values added for the log transformations.

have limited access to private international capital markets and are also small recipients of bilateral aid. Interestingly, we find that GDP growth is significant with a positive sign. Harrigan et al. (2006) found the similar result without explaining it. We argue that since access to PRGF is mainly granted to compensate the small amount of bilateral aid flows and is therefore mainly conditioned to a certain level of GDP per capita; since PRGF are concessional and account for small amount compare to SBA/EFF, these loans are granted more easily once the country has been designated as eligible.

Although the above economic model provides useful insights into the determinants of IMF programs, its explanatory power may be improved including variables capturing countries' geopolitical importance as argued by IMF staff (see citations above). Our factor gf_{it} is found to be significant at the 1% level and positively related to SBA/EFF, whereas it is significant at the 10% level and negatively related to PRGF. Therefore, our results exhibit that the IMF Executive Board is favouring geopolitically important countries when lending through non-concessional facilities, and favouring non-geopolitically important countries when lending via concessional ones, although the later is not fully robust. The results for the supplemented models show a strong improvement of the explanatory power of the estimations.

Table 7: Core results: Economic model of supply for IMF loans and geopolitical factor

Dependent variable / Explanatory variables	*SBA / EFF to quota (%)*				*PRGF to quota (%)*			
Growth of GDP	-4.475	-4.315	-4.499	-4.375	1.872	1.888	1.914	1.912
	(4.14)***	(4.09)***	(4.21)***	(4.15)***	(2.82)***	(2.85)***	(2.91)***	(2.90)***
Log of GDP per capita	1.005	0.908	0.902	0.868	-0.834	-0.767	-0.800	-0.759
	(5.24)***	(4.99)***	(5.16)***	(5.00)***	(12.45)***	(10.45)***	(10.89)***	(10.11)***
FX reserves to imports	-0.789	-1.104	-0.803	-1.013	-0.873	-0.822	-0.865	-0.825
	(1.85)*	(2.12)**	(1.76)*	(2.01)**	(2.20)**	(2.02)**	(2.18)**	(2.03)**
Debt service	4.079	3.407	4.590	3.945	0.791	0.812	0.623	0.705
	(3.10)***	(2.75)***	(3.29)***	(2.92)***	(1.65)*	(1.73)*	(1.26)	(1.47)
Geopolitical factor *gf*		0.554		0.393		-0.160		-0.129
		(3.61)***		(2.63)***		(1.70)*		(1.26)
Geopolitical potential: *gp*			0.083				-0.018	
			(3.00)***				(1.18)	
Pure geopolitical potential *gpf*				0.054				-0.011
				(1.94)*				(0.66)
Constant	-10.523	-9.581	-9.773	-9.362	2.777	2.291	2.544	2.244
	(5.20)***	(5.05)***	(5.26)***	(5.11)***	(4.89)***	(3.82)***	(4.16)***	(3.66)***
Pseudo-R^2 for Tobit estimations	*0.0930*	*0.1090*	*0.1035*	*0.1080*	*0.1520*	*0.1550*	*0.1540*	*0.1557*
Observations	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*
Countries	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*

Interval regression estimator - Marginal effect reported - Robust absolute value of t statistics in parentheses

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

As described above, we constructed a different way to estimate G_{it} using our geopolitical potential analysis. Indeed, we argue that one should not only take into account the geopolitical importance of a country, but also its geographical importance. We introduce gp_{it} in *(5)* and the results are, in many respects, similar to those found in the previous table. Even columns of table 8 show the result of our model using the geopolitical potential of countries

Another concern in this paper is to follow the international trade literature concerning the geopolitical factor. The method of calculation of the internal distance is problematic and depending of it, this may introduce a bias in the potential. Therefore, this could explain the fact that the geopolitical potential is less significant than the geopolitical factor. Dividing each country's geopolitical factor by its internal distance may affect the result since the factor analysis is bounded to an interval [-1.75, 2.19] and country's internal distance [13.84, 2754.81] in log terms. We therefore test also separately our measure of pure geopolitical potential, gpf_i, on top of our geopolitical factor, gf_i. They are robust for SBA/EFF while the levels of significance of our geopolitical proxies are decreased for the PRGF estimation. We investigate in the next section other possible explanations.

What arises from our core results is the fact that countries that are geopolitically important are favoured by the IMF when loans are non-concessional. We also find that concessional loans, i.e. PRGF, are granted to less geopolitically important countries, which could reflect the development objectives of these loans. As argued above, multilateral aid may be directed to less geopolitical countries to compensate the fact that they receive less bilateral aid. Therefore, this negative sign does not reflect the fact that the IMF wants to lend to not geopolitically important countries but rather that the PRGF eligible countries are not geopolitically important.

5.2 Robustness checks

5.2.1 On the importance of political factors

As discussed in sections 2 and 4, related studies on political economy determinant of IMF loans found that IMF loan decisions are significantly influenced by political factors. We test these factors in this section adding to equation (5) P_{it} that comprises the proxies of political economy factors that have found to significantly influence the attribution of IMF loan as detailed in the previous section.

$$L_{it}^{*} = \alpha + \beta X_{it} + \chi P_{it} + \delta G_{it} + \gamma * T_{t} + \mu_{it} \qquad (7)$$

Table 8 below shows the results of multiple specifications including the correlation of the borrowing countries to the US in the UN General Assembly; dummy variables to account for a seat in the UN Security Council, post and pre elections periods; indexes capturing governments' instability, the degree of political opposition and governments' political fractionization. Finally, we pool together these determinants in the last column of the table 8 to test for their robustness.

The results are in line with the related studies. Indeed, voting in line with the US in the UN Assembly appears to be the most important political factor shaping IMF loan decision. Holding a non-permanent seat in the UN Security Council is also positively related to the probability to get IMF money but appears to be less robust. Entering a program after, but not before elections is also found to be significant. Interestingly, factors capturing the degree of political stability influence rather more PRGF than SBA/EFF. Overall, our geopolitical factor shows robust significant estimated coefficients, empathising that we are not capturing political factors within our geopolitical factor.

Table 8: Robustness checks: Political factors

Dependent variable / variable	*Explanatory*	*Stand-by Agreements to quota (%)*							*Poverty Reduction and Growth Facilities to quota (%)*							Stand-by Agreements to quota (%)	Poverty Reduction and Growth Facilities to quota (%)
Growth of GDP		-4.283	-4,288	-4.118	-3.962	-4.134	-4.399	-4.337	1.929	1,878	2.074	2.196	1.596	1.695	1.771	-4,018	2,128
		(3.70)***	(3.76)***	(3.33)***	(3.53)***	(3.59)***	(3.82)***	(3.78)***	(2.89)***	(2.72)***	(2.61)***	(2.88)***	(2.49)**	(2.55)**	(2.66)***	(4.70)***	(2.44)**
Log of GDP per capita		0.722	0,929	0.800	0.759	0.933	0.885	0.886	-0.866	-0,752	-0.844	-0.854	-0.728	-0.723	-0.732	0,617	-0,984
		(3.58)***	(3.85)***	(3.82)***	(3.99)***	(3.81)***	(3.68)***	(3.71)***	(7.82)***	(8.01)***	(7.00)***	(8.44)***	(7.96)***	(7.91)***	(7.96)***	(4.33)***	(4.70)***
FX reserves to imports		-0.883	-1,108	-0.921	-0.885	-1.125	-1.226	-1.210	-0.941	-0,808	-0.721	-0.778	-0.816	-0.684	-0.688	-0,688	-0,732
		(1.31)	(1.65)*	(1.65)*	(1.59)	(1.62)	(1.76)*	(1.75)*	(2.24)**	(2.21)**	(1.22)	(1.79)*	(2.21)**	(2.02)**	(2.03)**	-1,25	(1.03)
Debt service		3.287	3,514	1.702	2.060	3.588	3.354	3.318	0.970	0,838	1.244	1.218	0.765	0.890	0.867	2,221	1,07
		(2.69)***	(2.73)***	(1.95)*	(2.64)***	(2.83)***	(2.72)***	(2.74)***	(1.73)*	(1.44)	(2.01)**	(2.36)**	(1.46)	(1.54)	(1.50)	(2.51)**	(1.38)
Geopolitical factor *gf*		0.490	0,521	0.479	0.453	0.493	0.513	0.508	-0.254	-0,212	-0.312	-0.260	-0.240	-0.237	-0.239	0,494	-0,284
		(2.77)***	(2.87)***	(2.94)***	(3.04)***	(2.75)***	(2.87)***	(2.86)***	(1.70)*	(1.57)	(2.02)**	(1.73)*	(1.84)*	(1.75)*	(1.75)*	(3.69)***	(1.59)
Vote in line with US in UN		6.818							2.651							2,914	0.276
		(1.73)*							(1.73)*							(2.03)**	(0.17)
UN Security Council seat			0,968							0.974						0.695	0.909
			(1.76)*							(1.61)						(1.30)	(1.12)
Election during previous 12 months				0.028							-0.676					0,057	-0,638
				(0.08)							(1.87)*					(0.15)	(1.49)
Election during following 12 months					0.875							0.858				0,421	0,837
					(2.19)**							(3.15)***				(1.13)	(2.18)**
Government stability						-0.001							0.713			-0.000	0.240
						(0.67)							(2.27)**			(0.06)	(0.63)
Political opposition							0.001							-0.001		-0.471	-0.293
							(1.23)							(2.12)**		(0.36)	(1.26)
Government fractionization								0.001							-0.001	0,001	-0,001
								(1.23)							(2.09)**	(0.92)	(1.70)*
Constant		-9.424	-9,683	-8.376	-7.952	-10.337	-9.315	-9.817	2.387	2,223	1.281	2.416	0.935	1.867	0.855	-7,661	2,508
		(3.86)***	(3.84)***	(3.88)***	(4.03)***	(3.82)***	(3.72)***	(3.75)***	(3.38)***	(3.26)***	(1.21)	(3.73)***	(1.01)	(2.92)***	(0.89)	(6.35)***	(1.89)*
Observations		1163	1163	1163	1163	1163	1163	1163	1163	1163	1163	1163	1163	1163	1163	*1163*	*1163*
Countries		98	98	98	98	98	98	98	98	98	98	98	98	98	98	*98*	*98*

Interval regression estimator - Marginal effect reported - Robust absolute value of z statistics in parentheses

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

5.2.2 On the importance of factors explaining aid flows

Since PRGF are multilateral aid agreements, we might also test for the importance of relevant determinants put forward in the aid literature. Burnside and Dollar (2000) for example, found that the level of democracy and corruption in the recipient countries, as well as the former colonial link between countries are strong determinants of bilateral aid decisions. However, they also found that these results are not robust for multilateral aid flows. As in the previous section, we added in equation (5) these proxies in A_{it} as follows:

$$L_{it}^{*} = \alpha + \beta X_{it} + \lambda A_{it} + \delta G_{it} + \gamma * T_{t} + \mu_{it} \quad (8)$$

Table 9 below show the results of our model including these variables independently and pooled altogether.

In accordance with the findings of Burnside and Dollar, we found that these factors do not influence significantly PRGF decisions. Only the level of democracy index is found to be significant in our models. This is not surprising given that, contrary to bilateral aid, aid managed on a multilateral basis is rather allocated in favour of good policy according to Bursnide and Dollar (2000). Once again, our geopolitical factor is found to be robust and shows significant estimated coefficients for SBA/EFF and still to a lesser extent for PRGF.

5.2.3 On the importance of recidivism

As discussed in section 4, SBA/EFF are found to be rather persistent. Therefore, we tested this in our specification by introducing a 3-year moving average of a dummy indicating whether or not a country was under an agreement following Przeworki and Vreeland (2000). Results are reported in table 10 below. The dummy is found to be significant indicating that there is some degree of persistence in IMF loan decision. Moreover, we also estimated a probit dynamic specification using the model developed by Stewart (2007).[14] His estimator control for the initial conditions problem proposed by Heckman (1981) involves specifying a linearised approximation to the reduced form equation for the initial value of the latent

[14] The dependent variable is therefore coded 1 when the country signs an agreement and 0 when there is no loan.

Table 9: Robustness checks: Aid determinants

Dependent variable / Explanatory variable	Stand-by Agreements to quota (%)			Poverty Reduction and Growth Facilities to quota (%)			Stand-by Agreements to quota (%)	Poverty Reduction and Growth Facilities to quota (%)
Growth of GDP	-4.524	-4.241	-4.291	1.827	1.716	1.899	-4.407	1.707
	(3.83)***	(3.46)***	(3.75)***	(2.84)***	(2.03)**	(2.86)***	(3.47)***	(2.09)**
Log of GDP per capita	0.808	0.988	0.869	-0.776	-0.787	-0.729	0.852	-0.816
	(3.46)***	(3.51)***	(3.67)***	(8.60)***	(6.99)***	(8.04)***	(3.13)***	(7.14)***
FX reserves to imports	-1.185	-1.207	-1.089	-0.774	-0.616	-0.745	-1.163	-0.661
	(1.69)*	(1.61)	(1.59)	(2.14)**	(1.39)	(2.15)**	(1.53)	(1.42)
Debt service	3.391	3.844	3.293	0.991	1.427	0.904	3.913	1.491
	(2.75)***	(2.83)***	(2.74)***	(1.91)*	(2.98)***	(1.59)	(2.87)***	(3.12)***
Geopolitical factor *gf*	0.463	0.347	0.464	-0.244	-0.240	-0.236	0.343	-0.232
	(2.66)***	(2.03)**	(2.68)***	(1.81)*	(1.43)	(1.76)*	(2.05)**	(1.44)
Democartic score	0.084			0.007			0.078	0.005
	(2.00)**			(1.33)			(1.98)**	(0.92)
Government corruption		0.147			0.066		0.009	0.064
		(0.96)			(0.62)		(0.05)	(0.60)
Former colony			-0.370			0.140	-0.050	-0.008
			(0.99)			(0.70)	(0.11)	(0.03)
Constant	-9.244	-10.477	-9.092	2.342	2.553	1.927	-9.490	2.762
	(3.80)***	(3.57)***	(3.68)***	(3.56)***	(2.62)***	(2.74)***	(3.36)***	(2.76)***
Observations	*1163*	*1163*	*1163*	1163	1163	1163	*1163*	*1163*
Countries	*98*	*98*	*98*	98	98	98	*98*	*98*

Interval regression estimator - Marginal effect reported - Robust absolute value of z statistics in parentheses

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

variable.[15] In both cases, our index of geopolitical importance was still found to be robustly significant. These results do not alter our benchmark model as we accordingly use a random effect specification, but one has to bear in mind the importance of recidivism in IMF lending.

Table 10: Robustness checks: Recidivism

Dependent variable / Explanatory variable	Stand-by Agreements agreed (dummy: 1 for loan agreement, 0 otherwise)	
	Tobit	*Dynamic probit*
Growth of GDP	-3.998	-1.009
	(3.34)***	(2.14)**
Log of GDP per capita	0.807	0.191
	(3.46)***	(2.19)**
FX reserves to imports	-1.125	-1.059
	(1.83)*	(2.33)**
Debt service	3.263	0.885
	(2.83)***	(1.56)
Geopolitical factor: *gf*	0.453	0.241
	(2.91)***	(2.11)**
Recividism: 3-year lag of the dependent variable	0.924	0.358
	(3.45)***	(2.11)**
Constant	-9.365	-2.774
	(3.73)***	(4.33)***
Observations	*940*	*940*
Countries	*98*	*98*

Absolute value of z statistics in parentheses

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

5.2.4 On the factor analysis: Testing the variables entering the factor

In further robustness checks, we test the adequacy of our factor analysis. This may be done by testing the robustness of the factor itself regarding the variables entering it and by computing the factor using another technique. The latter will be tested in the next sub-section. We focus here on the variables entering the factor analysis. First, table 11 below shows the results of estimations where all the geopolitical variables entering the factor are tested separately. Regarding the top panel on SBA, all variables, except UN military strength, are significant and positively linked to the decision and the amount to lend through SBA/EFF. This reinforces the robustness of

[15] There is an issue in modelling IMF lending as a two-stage process for which a selection model may be more appropriate. We did test for this using a two-stage Heckman selection model. However, the Likelihood Ratio test of independence of equations is rejected meaning that the model is poorly identified. This question needs more investigation as no identification strategy has yet clearly emerged in the related literature.

the use of a factor analysis. Indeed, the fact that all variables taking one by one are significant and that when these levels of significance decrease when pooling them together (see last columns of table 11) advocates for the use of the factor analysis to proxy the unobserved geopolitical importance of countries. Regarding the bottom panel of PRGF, results are less significant. This is non-surprising since the significance of our factor is less robust for PRGF as discussed above. The only significant variables are the oil reserves (in the bottom right and left parts), nuclear plant and nuclear weapon (only for the amount drawn). This suggests that when we say that the IMF tends to favoured less geopolitical important countries when lending through the PRGF resources, the Fund lend to countries with small endowment in resource, which is in line with its development objective, and without the nuclear civil and military power. In the latter case, one might argue that the IMF is willing to lend to countries that do not represent a nuclear threat, but one should also take into account that poor countries are less likely to be enough economically developed to build up nuclear power. We can in this case cite the interesting example of Pakistan which is a large recipient of PRGF and possesses both civil and military nuclear powers. Yet, Pakistan is the only country receiving both SBA/EFF and PRGF over the period.

Another robustness check consists in taking out variables, one by one, of the sample during the computation process of the factor analysis and by doing the same but in taking out groups of variables. Table 12 and 13 below present the results of these checks respectively. In the first place, variables are taken out one by one in the following order: Oil reserves, gas reserves, oil pipelines, gas pipelines, civil nuclear power plants, possession of nuclear weapon(s), US troops presence in the country, UN military strength in the country, NPT index, coastlines, area, lengths of roads and the number of borders. Results are robust to the different specifications for SBA/EFF and show more volatile significance for PRGF as pointed out in the preceding sub-section. Regarding the latter, results are non-surprisingly stronger when dealing with energetic and nuclear powers as shown in table 16 in which variables are, in a second place, taken out by groups organized as the following: Energetic, nuclear, military and geographic variables. Both tables reinforce the robustness of the construction of our factor analysis.

Table 11: Robustness checks on variables entering the factor

Dependent variable / Explanatory variables	*Stand-by Agreements to quota (%)*													
Growth of GDP	-4.377	-4.391	-4.414	-4.371	-4.382	-4.298	-4.486	-4.558	-4.441	-4.551	-4.258	-4.632	-4.443	-4.583
	(4.10)***	(4.09)***	(4.16)***	(4.14)***	(4.03)***	(3.90)***	(4.19)***	(4.15)***	(4.15)***	(4.22)***	(4.06)***	(4.26)***	(4.15)***	(3.89)***
Log of GDP per capita	0.907	0.945	0.862	0.861	0.927	0.958	0.942	1.004	0.920	0.912	1.074	0.904	1.055	0.712
	(4.91)***	(5.01)***	(4.79)***	(4.80)***	(4.83)***	(5.02)***	(5.34)***	(5.30)***	(5.10)***	(5.06)***	(5.28)***	(5.22)***	(5.22)***	(3.16)***
FX reserves to imports	-0.932	-0.960	-0.918	-0.958	-0.739	-0.882	-0.874	-0.727	-0.889	-0.647	-1.165	-0.895	-0.905	-0.884
	(1.95)*	(2.01)**	(1.86)*	(1.96)*	(1.70)*	(1.95)*	(1.98)**	(1.76)*	(1.93)*	(1.45)	(2.44)**	(1.98)**	(2.07)**	(1.33)
Debt service	3.857	3.889	3.589	3.724	3.748	3.871	3.894	3.923	3.894	3.867	3.383	3.617	3.828	2.907
	(3.00)***	(2.99)***	(2.80)***	(2.90)***	(2.91)***	(3.03)***	(3.05)***	(3.11)***	(3.02)***	(3.00)***	(2.76)***	(2.89)***	(2.99)***	(2.72)***
Log of Proven Oil Reserves	0.053													-0.289
	(2.71)***													(1.17)
Log of Proven Gaz Reserves		0.041												0.015
		(2.50)**												(0.09)
Log of Oil pipelines			0.049											0.236
			(3.28)***											(2.20)**
Log of Gaz pipelines				0.040										-0.102
				(2.92)***										(1.17)
Log of civil nuclear plant power					0.034									0.005
					(2.64)***									(0.09)
Dummy for nuclear weapon possession						1.149								0.784
						(3.51)***								(1.74)*
Log of US military strength							0.081							0.035
							(1.79)*							(0.78)
Log of UN military strength								0.035						0.152
								(1.32)						(2.41)**
Index of Non-Proliferation Teaties									1.704					1.337
									(2.69)***					(1.74)*
Log of km. of coaslines										0.041				0.082
										(2.41)**				(1.38)
Log of total area											0.223			0.009
											(3.06)***			(0.06)
Log of km. of roads												0.166		0.065
												(3.09)***		(1.18)
Log of borders													0.064	-0.266
													(1.99)**	(0.77)
Constant	-9.374	-9.786	-9.273	-9.785	-9.500	-10.270	-9.532	-10.036	-11.003	-9.995	-13.477	-11.639	-10.753	-10.354
	(4.93)***	(4.99)***	(4.94)***	(4.96)***	(4.69)***	(5.08)***	(5.39)***	(5.68)***	(5.26)***	(5.16)***	(5.11)***	(5.19)***	(5.21)***	(3.59)***
Time dummies	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*
Observations	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1164*
Countries	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*99*

Interval regression estimator - Marginal effect reported - Robust absolute value of t statistics in parentheses

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

Table 11: Robustness checks on variables entering the factor – Continuing

Dependent variable / variables *Explanatory*	*Poverty Reduction and Growth Facilities to quota (%)*													
Growth of GDP	1.898	1.889	1.902	1.875	1.842	1.835	1.883	1.900	1.899	1.850	1.868	1.875	1.874	2.078
	(2.84)***	(2.83)***	(2.86)***	(2.82)***	(2.82)***	(2.81)***	(2.83)***	(2.84)***	(2.84)***	(2.79)***	(2.83)***	(2.88)***	(2.83)***	(3.16)***
Log of GDP per capita	-0.751	-0.790	-0.790	-0.819	-0.790	-0.793	-0.842	-0.838	-0.817	-0.859	-0.837	-0.815	-0.833	-0.692
	(10.18)***	(10.79)***	(9.50)***	(9.28)***	(11.25)***	(11.67)***	(11.96)***	(12.27)***	(11.50)***	(11.31)***	(12.59)***	(11.32)***	(12.38)***	(6.71)***
FX reserves to imports	-0.836	-0.812	-0.883	-0.869	-0.820	-0.827	-0.884	-0.901	-0.798	-0.838	-0.868	-0.862	-0.877	-0.529
	(2.07)**	(2.01)**	(2.21)**	(2.17)**	(2.06)**	(2.04)**	(2.22)**	(2.26)**	(2.05)**	(2.14)**	(2.14)**	(2.17)**	(2.21)**	(1.67)*
Debt service	0.757	0.787	0.832	0.791	0.854	0.835	0.772	0.883	0.739	0.772	0.784	0.808	0.785	0.829
	(1.60)	(1.68)*	(1.75)*	(1.66)*	(1.82)*	(1.77)*	(1.62)	(1.74)*	(1.51)	(1.61)	(1.64)	(1.70)*	(1.64)	(1.34)
Log of Proven Oil Reserves	-0.023													-0.794
	(1.91)*													(2.04)**
Log of Proven Gaz Reserves		-0.014												0.038
		(1.33)												(0.30)
Log of Oil pipelines			-0.007											-0.055
			(0.80)											(1.14)
Log of Gaz pipelines				-0.002										0.061
				(0.26)										(1.37)
Log of civil nuclear plant power					-0.025									-0.078
					(1.57)									(1.60)
Dummy for nuclear weapon possession						-0.581								-0.069
						(1.55)								(0.15)
Log of US military strength							0.006							0.003
							(0.29)							(0.17)
Log of UN military strength								-0.010						-0.046
								(0.68)						(1.32)
Index of Non-Proliferation Teaties									-0.475					-0.668
									(1.10)					(2.33)**
Log of km. of coaslines										0.005				0.033
										(0.52)				(1.24)
Log of total area											-0.053			0.030
											(0.99)			(0.36)
Log of km. of roads												-0.022		0.000
												(0.77)		(0.00)
Log of borders													0.004	0.237
													(0.16)	(1.25)
Constant	2.029	2.366	2.449	1.528	2.130	2.549	2.866	2.657	2.962	2.925	3.459	1.711	2.769	1.670
	(3.18)***	(3.85)***	(3.72)***	(1.59)	(3.15)***	(4.48)***	(4.45)***	(4.45)***	(5.01)***	(4.89)***	(3.93)***	(2.19)**	(4.88)***	(1.16)
Time dummies	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*
Observations	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*
Countries	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*

Interval regression estimator - Marginal effect reported - Robust absolute value of t statistics in parentheses

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

Table 12: Robustness checks on different possible factors

Dependent variable / Explanatory variables	*Stand-by Agreements to quota (%)*													
	Agreed													
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*	*(14)*
Growth of GDP	-4.305	-4.305	-4.303	-4.311	-4.329	-4.333	-4.314	-4.316	-4.318	-4.311	-4.334	-4.304	-4.323	-4.324
	(4.09)***	(4.09)***	(4.07)***	(4.08)***	(4.11)***	(4.11)***	(4.08)***	(4.09)***	(4.09)***	(4.08)***	(4.09)***	(4.07)***	(4.07)***	(4.09)***
Log of GDP per capita	0.922	0.912	0.927	0.932	0.919	0.911	0.909	0.908	0.912	0.912	0.866	0.913	0.862	0.901
	(5.03)***	(5.01)***	(5.04)***	(5.05)***	(5.03)***	(5.01)***	(4.98)***	(4.99)***	(5.00)***	(5.00)***	(4.84)***	(4.98)***	(4.79)***	(4.96)***
FX reserves to imports	-1.135	-1.122	-1.125	-1.119	-1.122	-1.103	-1.094	-1.105	-1.097	-1.104	-1.051	-1.094	-1.048	-1.091
	(2.15)**	(2.14)**	(2.16)**	(2.15)**	(2.14)**	(2.12)**	(2.12)**	(2.12)**	(2.12)**	(2.13)**	(2.03)**	(2.11)**	(2.06)**	(2.09)**
Debt service	3.282	3.282	3.385	3.370	3.450	3.434	3.425	3.408	3.425	3.405	3.502	3.458	3.523	3.435
	(2.67)***	(2.68)***	(2.74)***	(2.73)***	(2.77)***	(2.76)***	(2.75)***	(2.75)***	(2.76)***	(2.74)***	(2.80)***	(2.77)***	(2.81)***	(2.76)***
Geopolitical factor:*gf*	0.571	0.580	0.547	0.553	0.550	0.543	0.547	0.556	0.548	0.547	0.574	0.539	0.564	0.557
	(3.78)***	(3.79)***	(3.66)***	(3.67)***	(3.45)***	(3.45)***	(3.60)***	(3.61)***	(3.57)***	(3.61)***	(3.59)***	(3.52)***	(3.55)***	(3.59)***
Constant	-9.639	-9.576	-10.202	-9.751	-9.660	-9.613	-9.593	-9.581	-9.610	-9.609	-9.333	-9.629	-9.299	-9.552
	(5.07)***	(5.06)***	(5.08)***	(5.08)***	(5.09)***	(5.07)***	(5.04)***	(5.05)***	(5.05)***	(5.05)***	(4.98)***	(5.05)***	(4.95)***	(5.04)***
Observations	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*
Countries	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*

Interval regression estimator - Marginal effect reported - Robust absolute value of t statistics in parentheses

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

Table 12: Robustness checks on different possible factors -- Continuing

Dependent variable / Explanatory variables	*Poverty Reduction and Growth Facilities to quota (%)*													
	Agreed													
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*	*(14)*
Growth of GDP	1.884	1.887	1.878	1.888	1.891	1.891	1.890	1.888	1.887	1.887	1.890	1.889	1.891	1.889
	(2.84)***	(2.85)***	(2.84)***	(2.86)***	(2.85)***	(2.85)***	(2.85)***	(2.85)***	(2.84)***	(2.85)***	(2.85)***	(2.84)***	(2.85)***	(2.85)***
Log of GDP per capita	-0.780	-0.771	-0.771	-0.766	-0.771	-0.770	-0.767	-0.767	-0.769	-0.769	-0.758	-0.768	-0.759	-0.763
	(10.59)***	(10.55)***	(10.78)***	(10.90)***	(10.57)***	(10.47)***	(10.47)***	(10.44)***	(10.50)***	(10.53)***	(9.77)***	(10.47)***	(9.79)***	(10.30)***
FX reserves to imports	-0.828	-0.832	-0.803	-0.809	-0.828	-0.826	-0.823	-0.822	-0.826	-0.821	-0.823	-0.823	-0.833	-0.820
	(2.03)**	(2.04)**	(1.97)**	(1.99)**	(2.03)**	(2.03)**	(2.02)**	(2.02)**	(2.03)**	(2.02)**	(2.03)**	(2.02)**	(2.05)**	(2.02)**
Debt service	0.821	0.823	0.801	0.813	0.806	0.808	0.809	0.812	0.813	0.811	0.814	0.807	0.810	0.810
	(1.75)*	(1.76)*	(1.71)*	(1.74)*	(1.72)*	(1.72)*	(1.73)*	(1.73)*	(1.74)*	(1.73)*	(1.74)*	(1.72)*	(1.73)*	(1.73)*
Geopolitical factor:*gf*	-0.138	-0.154	-0.173	-0.186	-0.151	-0.150	-0.162	-0.160	-0.155	-0.160	-0.159	-0.159	-0.155	-0.163
	(1.45)	(1.64)	(1.81)*	(2.01)**	(1.63)	(1.62)	(1.72)*	(1.70)*	(1.66)*	(1.71)*	(1.62)	(1.68)*	(1.58)	(1.72)*
Constant	2.383	2.324	1.223	2.284	2.323	2.317	2.288	2.291	2.305	2.302	2.224	2.295	2.235	2.267
	(3.96)***	(3.87)***	(1.41)	(3.91)***	(3.89)***	(3.87)***	(3.82)***	(3.82)***	(3.85)***	(3.85)***	(3.59)***	(3.83)***	(3.59)***	(3.76)***
Observations	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*
Countries	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*

Interval regression estimator - Marginal effect reported - Robust absolute value of t statistics in parentheses

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

Table 13: Robustness checks on groups of variables in the factor

	Stand-by Agreements to quota (%)				*Poverty Reduction and Growth Facilities to quota (%)*			
	PFR1	*PFR2*	*PFR3*	*PFR4*	*PFR1*	*PFR2*	*PFR3*	*PFR4*
Growth of GDP	-4.302	-4.340	-4.318	-4.335	1.856	1.892	1.889	1.893
	(4.07)***	(4.12)***	(4.08)***	(4.07)***	(2.86)***	(2.85)***	(2.85)***	(2.84)***
Log of GDP per capita	1.011	0.920	0.913	0.859	-0.807	-0.773	-0.769	-0.757
	(5.22)***	(5.04)***	(4.99)***	(4.72)***	(12.21)***	(10.58)***	(10.51)***	(9.50)***
FX reserves to imports	-1.133	-1.109	-1.089	-0.987	-0.801	-0.830	-0.827	-0.834
	(2.23)**	(2.13)**	(2.11)**	(1.98)**	(1.96)**	(2.04)**	(2.03)**	(2.06)**
Debt service	3.158	3.475	3.444	3.661	0.823	0.806	0.810	0.803
	(2.63)***	(2.78)***	(2.77)***	(2.87)***	(1.76)*	(1.72)*	(1.73)*	(1.71)*
Geopolitical factor[a]	0.564	0.535	0.543	0.528	-0.184	-0.146	-0.157	-0.152
	(3.94)***	(3.34)***	(3.55)***	(3.31)***	(1.75)*	(1.58)	(1.67)*	(1.51)
Constant	-10.264	-9.680	-9.618	-9.844	2.589	2.337	2.302	1.114
	(5.18)***	(5.10)***	(5.05)***	(4.92)***	(4.56)***	(3.92)***	(3.84)***	(1.24)
Time dummies	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*
Pseudo-R^2 for Tobit estimations	*0.1057*	*0.1031*	*0.1039*	*0.1020*	*0.1553*	*0.1546*	*0.1549*	*0.1546*
Observations	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*	*1163*
Countries	*98*	*98*	*98*	*98*	*98*	*98*	*98*	*98*

Interval regression estimator - Marginal effect reported - Robust absolute value of t statistics in parentheses

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

[a] *Bartlett scoring method*

[b] *Using different variables in the factor analysis:*

PFR1: all variables except the energy ones

PFR2: all variables except the nuclear ones

PFR3: all variables except the military ones

PFR4: all variables except the geographic ones

6. Conclusions

In this study, we have developed a conceptual framework to explain how and why geopolitics can be present and can have some influence over loan decisions and sizes in the International Monetary Fund. By introducing a new concept, the geopolitical potential, and a method yet unused in this literature, we intended to find evidence that country's geopolitical importance influence IMF loan decisions. Since the geopolitical importance of states is unobservable, we used in a first step a factor analysis. In a second step, we introduce the concept of geopolitical potential to capture the geopolitical importance of the borrowing country accounting also for its geographical location. The impact of the geopolitical factor and the geopolitical potential is also differentiated according to whether the Fund lend through concessional facilities (Poverty Reduction and Growth Facility (PRGF)) and non-concessional facilities supported by the General Resources Account (GRA), focusing on Stand-By Arrangements (SBAs), which are the most important facilities funded by the GRA.

Our results shed light on how geopolitics may influence the Fund lending practices. Economic determinants are still valid for both facilities and turn out to influence more for SBA. This is in a sense a reassuring result regarding the management of IMF funds, since SBA represent more than 80% of total IMF lending. More importantly, our geopolitical factor and potential are strong determinants of IMF loans. They however influence the probability to sign a SBA and a PRGF differently. Indeed, the Fund favoured geopolitically important countries through SBA, while countries receiving PRGF seem not to be selected according to their geopolitical importance. These results are robust when controlling for political determinants as well as to different econometric specifications.

To conclude, we do not intend to provide a judgmental analysis on whether the IMF should favour geopolitically important countries. However, the conclusions of our analysis may question the positive externalities of conditionality since the decision to lend non-concessional loans, i.e. through SBA/EFF, is influenced not only by economics factors, but also geopolitical ones.

Furthermore, we believe that geopolitics may also influence other international organizations, such as the World Bank. This constitutes therefore an interesting path to expand this work.

Bibliography

Ades, A., Chua, H. B., 1997. Thy Neighbor's Curse: Regional Instability and Economic Growth. Journal of Economic Growth 2 (3), 279-304.

Alonso-Meijide, J.M., Bowles, C., 2005. Generating Functions for Coalitional Power Indices: An Application to the IMF. Annals of Operations Research 137, 21-44.

Baldwin, D., 1979. Power Analysis and World Politics: New Trends versus Old Tendencies. World Politics 31 (2), 161-194.

Barro, R., Lee, J.W., 2005. IMF Programs: Who Is Chosen and What Are the Effects? Journal of Monetary Economics 52 (7), 1245-1269.

Bernholz, P., 2003. Geopolitical Determinants of the Relative Power of States: A Model of Spatial Relationships". EFMA 2003 Helsinki Meetings.

Le Billon, P., El Khatib, F., 2004. From Free Oil to 'Freedom Oil': Terrorism, War and US Geopolitics in the Persian Gulf. Geopolitics 9 (1), 109-137.

Bini Smaghi, L., 2004. A Single European Seat in the IMF? Journal of Common Market Studies 42 (2), 229-248.

Bini Smaghi, L., 2006a. IMF Governance and the Political Economy of a Consolidated European Seat. in E. Truman (Ed.), Reforming the IMF for the 21st century, Institute for International Economics.

Bini Smaghi, L., 2006b. Powerless Europe. Why is the Euro Area Still a Political Dwarf? International Finance 9 (2), 1-19.

Bird, G., 1995. IMF lending to developing countries. Issues and evidence. Ed.: Routledge, London.

Bird, G., Rowlands, D., 2000. The Political Economy of IMF Lending: Issues and Evidence. mimeo.

Bird, G., Hussain, M., Joyce, J., 2004. Many happy returns? Recidivism and the IMF. Journal of International Money and Finance 23(2), 231-251.

Boughton, J., 2004. Reflections on reform at the IMF and the demands of a changing world economy, Finance and Development, special issue IMF at 60 – 1944-2004.

Bown, C. P., 2005. Participation in WTO dispute settlement: Complainants, interested parties, and free-riders. The World Bank Economic Review 19 (2), 287-310.

Burnside, C., Dollar, D., 2000. Aid, Policies, and Growth. American Economic Review 90(4), 847-868.

Conway, P., 1994. IMF lending programs: Participation and impact. Journal of Development Economics 45, 365-391.

Darlington, R. B., Weinberg, S., Walberg, H., 1973. Canonical Variate Analysis and Related Techniques. Review of Educational Research 43 (4), 433-454.

Dietz, S. Neumayer, E., De Soysa, I., 2007. Corruption, the resource curse and genuine saving. Environment and Development Economics 12(1), 33-53.

Dreher, A., 2004. Does the IMF cause moral hazard? A critical review of the evidence. Exeter University, *mimeo*.

Dreher, A., Vaubel, R., 2004. Do IMF and IBRD cause moral hazard and political business cycles? Evidence from panel data. Open Economies Review 15, 1: 5-22.

Dreher, A., Marchesi, S., Vreeland, J., 2007. The Politics of IMF Forecasts. ETH Zurich - KOF Working Paper 176.

Dreher, A., Sturm, J-E.., Vreeland, J., 2006. Does membership on the UN Security Council influence IMF decisions? Evidence from panel data. ETH Zurich - KOF Working Paper 151.

Dreher, A., Sturm, J-E.., Vreeland, J., 2007. Development Aid and International Politics: Does membership on the UN Security Council influence World Bank decisions? Journal of Development Economics, *forthcoming*.

Edwards, S., Santaella, J.A., 1993. Devaluation Controversies in the Developing Countries: lessons from the Bretton Woods Era. In Bordo, M.D., B. Eichengreen (Eds.), A Retrospective on the Bretton Woods System, Chicago: University of Chicago Press.

Eifert, B., Gelb, A., Borje Tallroth, N., 2003. The Political Economy of Fiscal and Economic Management in Oil Exporting Countries. World Bank Policy Research Working Paper, WPS2899.

Fujita, M., Krugman, P., Venables, A., 1999. The Spatial Economy- cities, regions, and international trade, Cambridge, MIT Press.

Fratzscher, M., Reynaud, J., 2008. Is IMF Surveillance Biased? European Central Bank Working paper, *forthcoming*.

Hanson, G., 2005. Market Potential, Increasing Returns and Geographic Concentration. Journal of International Economics 67 (1), 1-24.

Harris, C. D., 1954. The Market as a Factor in the Localization of Industry in the United States. Annals of the Association of American Geographers 44 (4), 315-348.

Harrigan, J., Wang, C., El-Said, H., 2006. The Economic and Political Determinants of IMF and World Bank Lending in the Middle East and North Africa. World Development 34 (2), 247-270.

Heckman, J.J., 1981. The incidental parameters problem and the problem of initial conditions in estimating a discrete time - discrete data stochastic process and some Monte Carlo Evidence. In C.F. Manski and D. McFadden (eds.), Structural Analysis of Discrete Data with Econometric Applications.

Hutchison, M., Noy, I., 2003. Macroeconomic effects of IMF-sponsored programs in Latin America: output costs, program recidivism and the vicious cycle of failed stabilizations. Journal of International Money and Finance 22(7), 991-1014.

Isham, J., Woolcock, M., Pritchett, L., Busby, G., 2005. The Varieties of Resource Experience: Natural Resource Export Structures and the Political Economy of Economic Growth. World Bank Economic Review 19(2), 141-174.

Jackson, J. H., 2003. Sovereignty-Modern: A New Approach to an Outdated Concept. The American Journal of International Law 97 (4), 782-802.

Jo, D-J., Gartzke, E., 2007. Determinants of Nuclear Weapons Proliferation. Journal of Conflict Resolution 51 (1), 1-28.

Joyce, J. P., 1992. The economic characteristics of IMF program countries. Economics Letters, Elsevier, vol. 38(2), 237-242.

Joyce, J. P., 2004. Adoption, Implementation and Impact of IMF Programmes: A Review of the Issues and Evidence. Comparative Economic Studies 46 (3), 451-67

Knight, M., Santaella, J., 1997. Economic Determinants of IMF Financial Arrangements. Journal of Development Economics 54 (2), 405-436.

Kuziemko I., Werker E., 2006, How much is a seat on the Security Council worth? Foreign aid and bribery at the United Nations. Journal of Political Economy 114-905–30.

Leech, D., 2002. Voting power in the governance of the International Monetary Fund. Annals of Operations Research 109, 375-397.

Leite, C., Weidman, J., 1999. Does Mother Nature Corrupt? Natural Resources, Corruption, and Economic Growth. International Monetary Funds working paper WP/99/85.

Mackinder, H.J., 1904 The Geographical Pivot of History. The Geographical Journal, April.

Marchesi, S., Sabani, L., 2007. IMF concern for reputation and conditional lending failure: Theory and empirics. Journal of Development Economics 84 (2), 640-666.

Mavroidis, C. P., 2000. Remedies in the WTO legal system: Between a rock and a hard place. European Journal of International Law 11 (4), 763-813.

Mehlum, H., Moene, K, Torvik, R., 2006. Institutions and the Resource Curse. Economic Journal 116(508), 1-20.

Mussa, M., 1999. Reforming the International Financial Architecture: Limiting Moral Hazard and Containing Real Hazard. In *Capital Flows and the International Financial System*. Sydney: Reserve Bank of Australia.

Mussa, M., 2002. Reflections on Moral Hazard and Private Sector Involvement in the Resolution of Emerging Market Financial Crises. Paper presented at the Bank of England 23-24 July, IMF website.

Nye, J. S. Jr, 1990. The Changing Nature of World Power. Political Science Quarterly 105 (2), 177-192.

Oatley, T., 2002. Commercial Banks and the International Monetary Fund: An Empirical Analysis. Mimeo.

Oatley, T., Yackee, J., 2004. American Interests and IMF Lending. International Politics 41 (3), 415-429.

Osterud, O., 1988. The Uses and Abuses of Geopolitics. Journal of Peace Research 25 (2), 191-199.

Popke, J. E., 1994. Recasting Geopolitics: the Discursive Scripting of the International Monetary Fund. Political Geography 13 (3), 255-269.

Przeworski, A., Vreeland, J.R., 2000. The Effect of IMF Programs on Economic Growth. Journal of Development Economics 62 (2), 385-421.

Rato y Figaredo (De), R., 2004. The IMF at 60-Evolving Challenges, Evolving Role. Opening Remarks, Conference on "Dollars, Debts and Deficits-60 Years After Bretton Woods", Madrid, Spain, June 14, IMF website.

Reynaud, J., Thiman, C., Gatarek, L., 2007. Proximity and linkages among coalition participants: a new voting power measure applied to the International Monetary Fund. European Central Bank Working Paper Series 819.

Rose, A. K., 2007. The Foreign Service and Foreign Trade: Embassies as Export Promotion. The World Economy 30 (1), 22–38.

Sala-i-Martin, X., Subramanian, A., 2003. Addressing the Natural Resource Curse: An Illustration from Nigeria. National Bureau of Economic Research working paper 9804.

Shoyer, A. W., 2003. Panel Selection in WTO dispute settlement proceedings. Journal of International Economic Law 6 (1), 203-209.

Steinberg, R. E., 2004. Judicial Lawmaking at the WTO: Discursive, Constitutional, and Political Constraints. The American Journal of International Law 98 (2), 247-275.

Steinwand, M., Stone, R., 2007. The International Monetary Fund: A Review of the Recent Evidence, The Review of International Organizations 3 (2), 123-149.

Stewart, M.B. (2007), "The inter-related dynamics of unemployment and low-wage employment", Journal of Applied Econometrics, vol. 22, issue 3, 511-531.

Stiglitz, J., 2002. Globalization and Its Discontents, New York: W.W. Norton & Company.

Sturm, J-A., Berger, H., De Haan, J., 2005. Which Variables Explain Decisions on IMF Credit? An Extreme Bounds Analysis. Economics & Politics 17 (2), 177-214.

Thacker, S., 1999. The High Politics of IMF Lending. World Politics 52 (1), 38-75.

Thomson, G. H., 1951. The Factorial Analysis of Human Ability. London University Press.

Truman E., 2006. Overview on IMF Reform. In Truman, E. (Ed.), Reforming the IMF for the 21st century, Institute for International Economics.

Van Houtum, H., 2005. The Geopolitics of Borders and Boundaries. Geopolitics 10 (4), 672-679.

Vreeland, J.R., 1999. The IMF: lender of Last resort or Scapegoat? Yale University, Dep. of Political Science, Leitner working paper no. 1999-03.

Vreeland, J.R., 2001. Institutional determinants of IMF agreements, Yale University, Dep. of Political Science, Leitner working paper no. 2001-06.

Vreeland, J.R., 2007. The International Monetary Fund: Politics of Conditional Lending. New York: Routledge.

World Bank, 2007. Database of Political Institutions: Changes and Variable Definitions. Philip Keefer, Development Research Group, The World Bank, December 2007 update.

Appendix

Countries in the sample			
Albania	Croatia	Kyrgyzstan	Poland
Algeria	Czech Republic	Laos	Romania
Angola	Dominican Republic	Lebanon	Russia
Argentina	Ecuador	Lesotho	Rwanda
Azerbaijan	Egypt	Lithuania	Senegal
Bangladesh	ElSalvador	Macedonia	Sierra Leone
Barbados	Ethiopia	Madagascar	Slovakia
Belarus	Gabon	Malawi	Slovenia
Benin	Gambia, The	Malaysia	Sri Lanka
Bolivia	Georgia	Mali	Sudan
Bosnia & Herzegovina	Ghana	Mauritania	Syria
Botswana	Guatemala	Mauritius	Tajikistan
Brazil	Guinea	Mexico	Tanzania
Bulgaria	Guinea-Bissau	Mongolia	Togo
Burkina Faso	Haiti	Morocco	Trinidad & Tobago
Burundi	Honduras	Namibia	Tunisia
Cambodia	Hungary	Nepal	Turkey
Cameroon	India	Nicaragua	Turkmenistan
Central African Republic	Indonesia	Niger	Uganda
Chad	Iran	Nigeria	Ukraine
Chile	Iraq	Oman	United Arab Emirates
China	Israel	Pakistan	Uruguay
Colombia	Jamaica	Panama	Uzbekistan
Congo, Republic of the	Jordan	Papua New Guinea	Venezuela
Congo, Dem. Rep. of the	Kazakhstan	Paraguay	Vietnam
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