Curse of Friendship: IMF Program, Friendship with the United States, and Foreign Direct Investment

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Abstract

Under what conditions IMF programs catalyze foreign finance? In this paper, we contend that the effect of an IMF program in catalyzing foreign direct investment (FDI) hinges on whether or not American strategic interests intervene in IMF lending process. Specifically, IMF programs arranged following standard technocratic procedure and without undue American strategic intervention should credibly appeal to foreign investors, thus catalyze more FDI inflows in years following an IMF program. In comparison, when IMF programs are influenced by "high politics" and arranged under American strategic interests, the programs lose credibility to be strictly designed and enforced, thus foreign investors will be less willing to extend investment, resulting in reduction of FDI inflows in years following the programs. In sum, strategic allies of the U.S. experience less onerous IMF programs when they participate in them, yet friendship with the United States reduce the credibility of IMF programs, thus ultimately brings in negative consequences when it comes to attracting FDI. Building on existing scholarship on the IMF, we capture American strategic interests with United Nations General Assembly voting similarity and empirically test our argument using datasets on IMF programs and FDI. We find that friends of the U.S., those with higher affinity scores of United Nations General Assembly voting, are less able to attract FDI with IMF programs.

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Introduction

How do investors respond when a country goes to the International Monetary Fund (IMF)? While it might be intuitive to assume that a country's going to the IMF signals bad status of economy, hence investors respond to such event negatively, it is also plausible to reason precisely the opposite: when a country signs an IMF program, the country may become more appealing to investors, especially if a researcher can control for economic circumstances that force a country to choose between participation and non-participation in an IMF program. That is, when we separate the effect of economic conditions that lead a country's decision to participate in an IMF program and the effect of the decision itself, the net effect of IMF program participation should be positive: when a country participates in an IMF program and another doesn't amidst a similar economic crisis, the country that goes to the IMF should be able to lure more capital from investors than the country that does not. This latter reasoning, often dubbed as "catalytic finance" or "catalytic effect", gained some traction among scholars and practitioners since 1970s (Cottarelli & Giannini 2003).

The idea that IMF financial resources can be used to reinforce financial markets' confidence and catalyze private finance was expressed as early as in 1977, when Anthony Solomon, Undersecretary of the Treasury for Monetary Affairs, testified before the U.S. House of Representatives (Cottarelli & Giannini 2003). Trying to convince that the IMF financial resources would not be used to bail out private banks, he states:

> The very fact that [countries] are meeting the IMF's performance criteria and thus continue to be eligible to draw from the IMF tends to represent a kind of Good Housekeeping seal of approval. Good performance under an IMF program tends to result in private capital inflows, private banks being willing to lend more to the country concerned" (U.S. House of Representatives, 1977, p.72).

This optimistic outlook for the catalytic effect of an IMF program was soon echoed by IMF staff who emphasize the signaling effect of "the stamp of approval of the IMF" in Zaire

in 1976 and 1977 (de Vries 1985)" and "the side effect of the mix of [IMF] adjustment and financing ... to help members attract flows of capital from sources other than the Fund (Guitian 1982)."

The catalytic finance hypothesis, which originally developed in the context of catalyzing portfolio investment, has been extended to longer term foreign direct investment (FDI). The connection between IMF programs and FDI seems like a logical extension of the link between IMF programs and debt rescheduling or other portfolio investment. When a country participates in an IMF program which includes both IMF financial resources and economic and institutional reform package, the participating country's prospects for economic recovery and policy reforms for better investment environment should get better in theory. Thus, IMF programs should catalyze FDI whose investors should seek more favorable business environment and welcome implementation of policy reforms.

The empirical tests of the hypothesis, however, show inconsistent results. Some report that IMF programs indeed work as a catalysis and increase capital inflows into participating countries; others report that IMF programs actually depress capital inflows. Thus, moving away from seeking a general association between IMF programs and capital inflows, recent studies of IMF programs' catalytic effect move toward identifying conditions under which the catalytic effect is more likely.

This paper considers the political influence of the United States in the life-cycle of an IMF program as a key condition and theorizes the effect of the favoritism in the context of IMF programs and foreign direct investment. Specifically, it theorizes that the effect of an IMF program on FDI should be more positive when political influence of the U.S. is the least expected and should be more negative when influence of the U.S. is the most expected. This is because the political intervention by the U.S. undermines the credibility of an IMF program. As research on the IMF indicates, the U.S. exerts enormous influence in every stage of an IMF program, from IMF program participation (Momani 2004*a*, Momani 2004*b*, Thacker 1999), to IMF conditionality design (Dreher & Jensen 2007), to program compliance and punishment

(Stone 2004). Specifically, The U.S. makes it easier for its "friends" to arrange loans with the IMF with more lenient conditions and lighter or less likely punishment in case of non-compliance. Such favorable treatment can backfire by undermining credibility of an IMF program and reducing prospect for rigorous reform design and its implementation. That is, when the IMF functions without the political influence of the U.S., it will design and enforce stricter reform packages which should appeal to foreign investors. However, when the IMF operates with the influence of the U.S., reform packages will be less credible, reducing the appeal to foreign investors. This conditional effect of IMF programs on FDI is empirically supported in our statistical analysis.

The paper is organized as follow. The next section reviews extant studies of the nexus between IMF programs and investment. The third section theorizes the effect of the U.S. influence in catalyzing FDI. The next two sections introduce empirical research design and report and discuss results from statistical analysis. The concluding section discusses policy implication of the paper.

Literature Review

Catalytic Effect of IMF Program

Theoretical studies of the catalytic effect of IMF programs focus on different theoretical mechanisms yet converges on a clear theoretical prediction: IMF program participation catalyzes other finances. Either working as a costly signal or as a credible commitment device, signing into IMF programs demonstrates that those countries that participate in IMF programs do have greater political will to reform their economic policies than those who do not, making the former more attractive to creditors and investors. For instance, when reviewing theoretical literature on the catalytic effect, Bird states that a very commonly held view is that the Fund? catalytic effect is (or should be) indeed significant and positive, because an IMF program works as "a seal of approval" (Bird 2007).

Penalver (2004) and Cottarelli and Giannini (2003) provide a comprehensive list of the theoretical underpinnings for the catalytic effect. The five channels of the catalytic effect that they present include policy design (better policy design due to IMF involvement and expertise), information (signaling the economic conditions of a borrowing country), conditionality as a commitment device, a screening device (IMF would only lend to those who are genuinely committed to implement onerous economic reforms), and insurance (Penalver 2004, Cottarelli & Giannini 2003). To explore the screening mechanism, for instance, Marchesi and Thomas(1999) model the interaction between the IMF and a borrowing country such that the IMF can use an IMF program to distinguish or screen those "bad" countries — countries that are willing to default or that are not committed to economic reforms — from "good" countries — countries that show good faith to avoid default or that are committed to politically costly reforms. The IMF is better equipped to access the private information of a borrowing country than private investors or creditors, because the Fund has various institutional arrangements. Thus when the IMF lends to a country, it signals that the country is likely to be a "good" one.

The positive catalytic effect argument has been applied and tailored to explain FDI inflows. For instance, Jensen (2004) states that "conventional wisdom would lead us to believe that IMF programs should be associated with higher inflows of FDI ... Ceteris paribus, countries in financial crisis improve their ability to attract FDI inflows by signing IMF agreements." Some later works elaborate on the theoretical mechanisms. Biglaiser and DeRouen Jr. (2010) contend that embracing IMF programs should signal participating countries' commitment to adopting economic reforms that investors favor or that present more investment opportunities. Alternatively, Bauer, Cruz, and Graham (2012) focus on the IMF's ability to levy ex ante costs to a country participating in the IMF program and argue that monitoring and sanctioning of the IMF increases investor's confidence on reform prospects as the IMF can punish those countries that do not implement the agreed-upon policy reforms (Bauer, Cruz & Graham 2012).

The unequivocal prediction of the positive catalytic effect of an IMF program has not received much empirical support, however. Studies that empirically investigate the effect of IMF programs either on portfolio investment, debt rescheduling, or FDI end up finding different results, depending on the measures that they use, the methods that they employ, or the datasets that they choose to utilize.

Some studies find that the IMF program tends to increase private financial flows. Rowlands, for instance, finds that the most common lending types of the IMF — Standby agreements and loans through Extended Fund Facilities — tend to act as a catalyst for capital flows, as measured by total debt change, although the positive effect is more salient in some time period (1980s) and in lending cases to low-income developing countries than others (Rowlands 2001). Testing her theoretical model of the screening function of an IMF program, Marchesi also finds that "countries who have arrangements with the IMF are more likely than others to obtain a rescheduling of their external debt (Marchesi 2003)." On the other hand, Edwards shows that signing an IMF program results in significant outflows of portfolio investment, which he attributes to austerity measures commonly found in an IMF program (Edwards 2006). In comparison, Bird and Rowlands report that there are few consistent empirical patterns, and to the extent that they exist, they are weak (Bird & Rowlands 1997, Bird & Rowlands 2000). Thus, they conclude that "the effect of the international financial institutions on other lenders varies across time and location (Bird & Rowlands 1997, p.p.983)."

Jensen (2004) tests the catalytic effect hypothesis on FDI inflows. Controlling for the selection effect of IMF program participation, Jensen (2004) finds that IMF agreements result in a lower level of FDI. He reports that countries signing an IMF program on average receive 25% less FDI inflows than countries not under an IMF program (Jensen 2004). In comparison, Biglaiser and DeRouen Jr. (2010), by examining the effect of IMF programs on the U.S. FDI, find that IMF borrowers tend to be more attractive to U.S. investors, thus contradicting the results of Jensen (2004).

To summarize, there are few clear and consistent empirical patterns emerging with respect to the catalytic effect of IMF programs either on debt rescheduling, portfolio investment, or FDI. Recent surveys of IMF studies agree that there seem to be few generalizable conclusions among empirical studies of the catalytic effect. Steinwand and Stone (2008) conclude that "one clear finding of this new literature is that the catalytic effects of IMF lending are not uniform across countries." Similarly, in their survey of empirical literature of catalytic finance, Bird and Rowlands (2007, 2002) conclude the following:

> To the extent that there is a catalytic effect... it appears to be weak and partial, and dependent on the countries and capital flows involved as well as the nature of IMF involvement. The evidence... also suggests that the effects of IMF programs are highly idiosyncratic, with some results appearing sensitive to sampling and econometric procedures. Any generalization must be viewed with caution. However, it does appear that large scale empirical research provides little support for the idea of strong, consistent and positive catalysis (Bird & Rowlands 2002).

Based on weak and often conflicting empirical evidence, both Bird (2007, 2002) and Steinwand and Stone (2008) favor moving away from seeking a generalizable argument and moving towards exploring a more nuanced approach of identifying circumstances where the catalytic effect is more positive and significant. In particular, they call for more theoretical studies to identify such conditions.

More recent studies have started to move toward investigating under which conditions IMF programs work, and they have identified a few circumstances under which the catalytic effect is more likely to be positive. Recent theoretical literature develops models to argue that when the economic fundamentals are neither too bad or too sound, an IMF program will most likely catalyze private financing (Morris & Shin 2006, Brandes & Schule 2008, Corsetti, Guimaraes & Roubini 2006). Mody and Saravia (2006) and Bordo *et al.* (2004) test the hypothesis and report that IMF programs are indeed likely to have positive catalytic effects when they are signed before economic fundamentals have significantly deteriorated.

In addition, Bauer, Cruz, and Graham (2012) argue that the effect of IMF agreements on a country's access to FDI depends on its domestic institutions. They argue that access to FDI depends on a country's ability to commit credibly to implementing an IMF program, and this ability varies systematically across regime type. In democracies, where governments can commit more credibly, IMF program participation has a positive effect on FDI inflows, while in autocracies, where governments cannot credibly do so this as well, IMF program participation has a weak, negative effect (Bauer, Cruz & Graham 2012). Woo(2013) contends that the catalytic effect is stronger when IMF conditions are more strict. Examining the effect of IMF programs on the U.S. FDI, Biglaiser and DeRouen Jr. (2010) report that IMF borrowers tend to attract U.S. investment, although the effect varies across loan types: Stand-by agreements are more likely to catalyze than agreements under the Poverty Reduction and Growth Facility. Looking at the variation in loan sizes, Benelli (2006) reports that larger financial assistance is negatively related to private capital flows.

These recent studies certainly advance our understanding of the catalytic effects of IMF programs. Looking at various characteristics of IMF programs and circumstances that warrant IMF program participation has helped researchers to identify the conditions under which IMF programs can work as a "seal of approval." At the same time, one of the most important political factors of IMF programs, the political influence of the major shareholder, the U.S., has yet to be theoretically explored and empirically examined. The omission is problematic, given that causal channels of the Fund's catalytic effect, such as screening, credible commitment, and signaling mechanisms, may hinge on the possibility of political intervention by the U.S. Building on the existing studies, the following section presents a theoretical argument on the effects of IMF programs, political relations between the U.S. and program participating countries, and FDI.

Theory

The proposition that IMF programs catalyze private capital flows poses a scenario where investors, a country, and the IMF interact and it goes as follow. Countries participate in IMF programs signal that they are committed to market oriented reforms — privatization, deregulations, financial sector reforms, labor reforms — that investors often deem desirable. When countries decide to participate in IMF programs, investors welcome them and increase their investment to those countries. Hence, it follows, the catalytic effect of IMF programs.

While theoretically sound, this proposition receives few consistent empirical support as reviewed above. At best, empirical support is contingent on specific circumstances. We propose a refined theory of the catalytic finance in order to reconcile existing inconsistencies among empirical studies of the catalytic effect.

We identify a problem with the core logic of the catalytic effect proposition: credibility of the commitment to economic reforms. When countries participate in IMF programs, they signal their commitment to often politically costly reforms, but how credible is such commitment? Existing theoretical argument assumes that credibility is given and constant across IMF programs because the IMF is a unique institution with some enforcement capabilities. Contrary to a received wisdom in international relations that states' commitment to international institutions is not credible without a central enforcement power, the IMF has certain enforcement and credibility enhancing mechanisms. Generally speaking, such credibility enhancing mechanisms include potentially incurring some costs — either up front sunk cost or *ex post* cost incurred when promise is broken (tying hands). Participating in an IMF program does incur some domestic political cost up front and breaking promises may incur *ex post* cost of being punished by the IMF in the form of suspension of loan disbursement and reputational damage that might affect prospect for getting new loans from both the IMF and private financiers. Given the credibility enhancing mechanisms of the IMF, the existing catalytic argument goes, participation in IMF programs demonstrate credibility of the commitment to economic reforms. This assumption, however, is problematic as the

operation of the credibility enhancing mechanisms is not constant but varies depending on which country participates in an IMF program.

The credibility of he commitment to economic reforms varies because how much the IMF push for such reforms and how likely the IMF will punish those countries that do not follow through their commitment is a political decision. The decision making body of the IMF, the Executive Board, is comprised of 24 Board of Directors representing a country or a group of countries and these directors make all important decisions including program approval and suspension. The most powerful member of the Executive Board is the Director of the U.S. who exerts about 17% of voting power, thus can singlehandedly block any decision as most of Board decisions require 85% supermajority. Because of this disproportional influence of the U.S., the U.S. has been able to utilize the IMF as a policy tool as needed. Studies of the IMF has demonstrated political influence of the U.S. in every stage of an IMF program (Thacker 1999, Dreher & Jensen 2007, Momani 2004*a*, Momani 2004*b*, Stone 2004, Stone 2011). The key finding of these extant research is that close "friends" of the U.S. often receive a favor from the IMF and arrange IMF programs with less strict conditions and are less likely to be punished by the IMF in case of noncompliance. This implies that IMF's push for economic reforms and potential punishment for noncompliance is weakest when "friends" of the U.S. sign into IMF programs and the strongest when those countries that the U.S. does not care much participate in IMF programs. In a nutshell, credibility of IMF program is varies: it is strongest when the IMF works without political intervention of the U.S.; it is undermined when IMF programs are arranged under the heavy influence of the U.S.

The catalytic effect varies as the credibility of an IMF program varies. The credibility of an IMF is the lowest when the political influence of the U.S. is the highest. In this case, the appeal of an IMF program to investors should be weakest. Thus, the catalytic effect should be negative when "friends" of the U.S. sign in IMF programs. In comparison, the credibility of an IMF program and consequently, the prospect for economic reforms should be stronger when countries without significant ties with the U.S. sign into IMF programs. With stronger

prospect for economic reforms, these programs should better appeal to investors, resulting in larger amount of FDI staying and flowing in.

The theoretical argument is summarized below:

- When friends of the U.S. sign into an IMF program, the effect of the program on FDI should be more negative than when countries without significant ties with the U.S. sign into an IMF program.

Research Design

In order to test our hypothesis, we employ a time serious cross sectional design where the unit of analysis is a country year. The temporal domain covers from 1980 to 2004, and the sample of countries include 106 countries that have participated in an IMF program at least once during that period. Methodologically, examining the effect of an IMF program on FDI is not a simple task. It is well-known that joining an IMF program is not a random event, but there exist underlying conditions which lead certain countries more likely to participate in the program (Vreeland 2003, Jensen 2004, Biglaiser & DeRouen 2010, Woo 2013). Accordingly, using a simple OLS may lead to a biased estimator. Previous literature had adopted a number of methodologies to control for the conditions which lead country to participate in an IMF program as a first cut. Similar to Jensen(2004), Vreeland(2003), and Biglaiser and DeRouen Jr(2010), we use a treatment effect model which allows us to estimate the effect of a binary variable (i.e. IMF program) which is a function of a set of endogenous variables, on another endogenously chosen continuous variable (i.e. FDI).

At the treatment stage, the main dependent variable is an IMF participation. We use two measures of IMF participation: the variable *Sign IMF* codes one when a country signs an IMF program in a given year; and the variable *Under IMF* codes one when a country is in an IMF program. While two variables look similar they are not severely correlated (i.e. 0.42). In order to estimate the likelihood of joining an IMF program, we include a number of

variables building on existing IMF studies: foreign reserves, measured in months of imports (*Reserves*); total debt services, measured as share of exports (*Debt*); current account balance, measured as share of GDP (*Balance*); number of IMF programs in place wordwide in a given year (*Number*); regime type (*Regime*); logged GDP per capita in constant US $ (*LnGDPpc*); and GDP growth rate (*Growth*).

The main dependent variable of the estimation is the amount of foreign direct investment. In order to measure the FDI size, we use a logged FDI inward, measured in millions of US dollar. While some FDI studies employ a rescaled measure of FDI (i.e. FDI as a percentage of GDP) (Jensen 2003, Büthe & Milner 2008), we prefer to use non-scaled measure for following reasons. Quan Li (2009) directly discusses this issue arguing that, first and theoretically, FDI divided by the size of GDP is more closed to the concept of 'FDI openness' as in the way scholars measure 'trade-openness,' second and empirically, since the dependent variable contains GDP component, it is less clear if the effects of independent variables are due to the FDI or GDP side. Allee and Peinhardt (2011) also raise a similar concern that "including some type of standardizing variables on the left-hand side of the regression equation (for example, FDI as a percentage of GDP) could create artificially large correlations with some independent variables (for example, population, GDP, GDP per capita, etc.)" Note that since the FDI stock data is reported in current US dollar, we convert it to 2005 constant value to deal with the inflation over time, and like others (Eichengreen & Irwin 1995, Levy Yeyati, Panizza & Stein 2007, Kerner 2009, Tobin & Rose-Ackerman 2011), we use a following transform to cope with zero values. The original FDI data comes from UNCTAD.

$$\text{If } \mathsf{FDI} \geqslant 0 \text{ then } \mathsf{LogFDI} = \mathsf{Log}(1+|\mathsf{FDI}|) \text{ and if } \mathsf{FDI} < 0 \text{ then } \mathsf{LogFDI} = -\mathsf{Log}(1+|\mathsf{FDI}|)$$

Our key independent variables of the second stage are an IMF participation (from the treatment stage) and the level of affinity with the U.S. In order to capture the relationship

with the U.S., we utilize the country's voting congruency with the US at the UN General Assembly (Strezhnev & Voeten 2012). This variable has been widely used in the similar studies (Dreher & Jensen 2007, Thacker 1999). The variable *Affinity* measures a country's UN roll-call voting similarity with the US. This variable ranges from -1 to 1. Lastly, we create the interaction variable *IMF*Affinity* by multiplying IMF variable with Affinity variable to examine the conditional hypothesis. The theoretical expectation is that the interaction variable is negative.

We include a set of control variables to account for economic and political factors affecting the investment decision of foreign investors. As economic variables, we include logged population (*Population*), logged GDPpc (*GDPpc*), logged Trade (*Trade Openness*), oil rents as a percentage of GDP (*Natural Resource*. It is expected that the size of economy, development level, trade openness, and natural resource are positively associated with inward FDI. As political variables, we control for regime type (*Regime*), and both interstate and internal armed conflict (*Interstate Conflict*, *Internal Conflict*). All of economic variables are from the World Bank's world development indicator (WDI). We utilize Polity IV project (Marshall & Jaggers 2002) and Uppsala conflict data program [1] to measure the regime type and two types of conflict, respectively.

The main model (second stage) is specified below.

$$\mathsf{FDI} = \beta_1 \mathsf{IMFParticipation}_{(t-1)} + \beta_2 \mathsf{AffinitytotheUS}_{(t-1)} + \beta_3 \mathsf{IMF} * \mathsf{Affinity}_{(t-1)} + \mathsf{Controls} + \epsilon$$

As discussed earlier, we expect that the effect of IMF program on foreign investment is conditioned by a host country's relationship with the U.S. Precisely, we argue that when the host country participates in an IMF program, a closer ally of the U.S. would receive a favorable treatment up front from the U.S. and also less likely to be punished by the IMF

[1] Uppsala Conflict Data Program (Date of retrieval: 08/01/14) UCDP Conflict Encyclopedia (UCDP database): www.ucdp.uu.se/database, Uppsala University

for noncompliance. Therefore, the credibility of market friendly reform is not strong in this case, accordingly the country would not be favored by foreign investors. In this vein, we predict that the coefficient of the interaction term β_3 would be negative, thus the marginal effect of IMF program on FDI is negatively modified by the level of host county's affinity to the U.S. When host countries are not a close friend of US, they should be able to send a more credible signal to foreign investors that they would endure costly economic reform. However, the credibility becomes weak, or even an IMF program can be a bad signal to investors unless host countries cannot send a credible signals of economic reform. That is, while the effect of an IMF program is positive when host countries are not very close to the US, the effect may become weak or even negative to those who are close friends of the US, because foreign investors would believe that the financial crisis would not be recovered. Thus, we expect that the marginal effect of IMF program on FDI ($\frac{\delta \text{FDI}}{\delta \text{IMF}} = \beta_1 + \beta_3 \texttt{Affinity}_{(t-1)}$) should be positive when the affinity score is low but it will negative when the affinity score is high.

Empirical Analysis

Table 1 presents the main results of the treatment effect analysis. The results generally support our argument that the effect of IMF program is negatively conditioned by the relationship with the US. Model 1 reports the baseline model which include both IMF participation and Affinity to the US in an additive manner. In Model 2, we include the interaction variable to examine the conditional hypothesis we propose. Model 3 and 4 are essentially the same as 1 and 2, but we use an different measure of dependent variable.

In Model 1 and 2, the treatment variable is *Sign IMF*. As previous studies posit, recipient government's decision to join an IMF program is well explained by domestic financial conditions. Countries are more likely to sign an IMF program as foreign reserves are low, debts increases, and account balance is high. The results reported in Model 1 does not provide direct evidence of the catalyst effect, though. Instead, it turns out that signing IMF program

has a significant and negative effect on FDI, which is similar to what Jensen (2004) found. In addition, while the affinity to the US has strong positive effect on the signing stage, it does not have any significant on FDI stage. However, the estimation result in model 2 supports our argument that the affinity to the US has a conditional effect on the relationship between IMF program and FDI. As expected, the coefficient of the interaction term is negative and significant, indicating that the direction of the modifying effect is negative. This implies that the affinity variable in fact reduces the effect of IMF program on foreign investment, which is consistent with our expectation.

Now let us turn to Model 3 and 4, where we use *Under IMF* as a measure of IMF participation. First of all, the general findings of the treatment stage is similar to model 1 and 2. Again, financial/economic conditions are important determinants of IMF participation. Yet, more interesting findings are found in the main, second stage results. In Model 3, it is worth noting that *Under IMF* has a positive independent effect on FDI controlling other variable constant. While signing IMF has a negative and significant effect on inward FDI, countries in an IMF program tend to attract more FDI than others. One possible explanation is that while the signing behavior has a temporary, negative effect on FDI because of existing adverse investment environment, countries can much easily signal their commitment to market friendly reform as they are in an IMf program in the long run. Lastly, we add the interaction term in Model 4 to test the conditional hypothesis. With different measure of IMF participation, the result clearly supports our argument again. The coefficient of the interaction term is negative and significant at 1% level, indicating that significant conditional effect exists.

In order to examine the interaction effect more closely, we present two marginal effect plots in Figure 1, based on Model 2 and 4, respectively. First, Figure 1 demonstrates the marginal effect of IMF program (i.e. Sign an IMF) on FDI which is conditioned by the affinity to the U.S. The X axis represents the level of affinity and Y axis represents the size of the marginal effect. As we argued, the affinity to the U.S. has a negative effect on the relationship between an IMF program and FDI. As the host country is more close to the U.S., they are less likely to attract FDI. Substantively, when the affinity score is zero, the inward FDI of the host country declines by 84%, but the loss increases as the affinity score increases. If the host country is the closest friend of the U.S (i.e. affinity score is one), than the expected loss of FDI is 148%, which is considerably high. Yet, this negative effect does not hold if country is not very close to the U.S. When the affinity score is less than -0.5, IMF program does not have any effect on FDI. With a different dependent variable (Model 4), the result further strongly supports our argument. The marginal effect of an IMF program on FDI is positive when the affinity score is low but it turns negative when a country is a close friend of the U.S. Substantively, a country under the IMF program can increase their FDI inward by 62% if the affinity score is at its minimum value, but they will lose FDI by 92% if the affinity score is at its theoretical maximum value.

Table 1: The Effects of IMF on FDI (Treatment Effect Model)

	Model 1	Model 2	Model 3	Model 4
Affinity to the US	-0.120	0.054	-0.139	0.390**
	(0.104)	(0.119)	(0.105)	(0.175)
Sign IMF	-0.537**	-0.841***	-0.162**	-0.152**
	(0.269)	(0.287)	(0.071)	(0.071)
Sign IMF*Affinity to the US		-0.635***		
		(0.212)		
Under IMF	0.178***	0.178***	0.251***	-0.149
	(0.055)	(0.055)	(0.076)	(0.130)
Under IMF*Affinity to the US				-0.769***
				(0.204)
Population	1.029***	1.032***	1.032***	1.033***
	(0.019)	(0.019)	(0.019)	(0.019)
GDPpc	1.328***	1.327***	1.341***	1.344***
	(0.033)	(0.033)	(0.033)	(0.033)
Trade Openness	1.046***	1.054***	1.070***	1.074***
	(0.058)	(0.058)	(0.058)	(0.057)
Regime Type	-0.049	-0.048	-0.055	-0.063
	(0.058)	(0.058)	(0.058)	(0.058)
Natural Resource	0.009***	0.009***	0.009***	0.010***
	(0.003)	(0.003)	(0.003)	(0.003)
Interstate Conflict	-0.066	-0.062	-0.061	-0.055
	(0.062)	(0.062)	(0.062)	(0.062)
Internal Conflict	-0.083***	-0.084***	-0.085***	0.083***
	(0.030)	(0.030)	(0.030)	(0.030)
Treatment Stage	DV: Sign IMF		DV: Under IMF	
Under IMF	0.222***	0.222***	1.965***	1.965***
	(0.073)	(0.073)	(0.074)	(0.074)
Reserve	-0.074***	-0.074***	-0.044***	-0.044***
	(0.017)	(0.017)	(0.016)	(0.016)
Debt Service	0.014***	0.014***	0.015***	0.015***
	(0.002)	(0.002)	(0.003)	(0.003)
Account Balance	0.008*	0.008*	0.004	0.004
	(0.005)	(0.005)	(0.004)	(0.004)
Regime Type	0.060	0.060	0.081	0.081
	(0.079)	(0.079)	(0.082)	(0.082)
Number under IMF	0.003	0.003	0.016***	0.016***
	(0.004)	(0.004)	(0.004)	(0.004)
GDPpc	0.046	0.046	-0.183***	-0.183***
	(0.042)	(0.042)	(0.044)	(0.044)
Growth Rate	-0.034***	-0.034***	-0.018***	-0.018***
	(0.006)	(0.006)	(0.006)	(0.006)
Observations	1858	1858	1858	1858

Note: Independent variables are lagged by one year.
Standard errors in parentheses. * p<0.10; ** p<0.05; *** p<0.01.

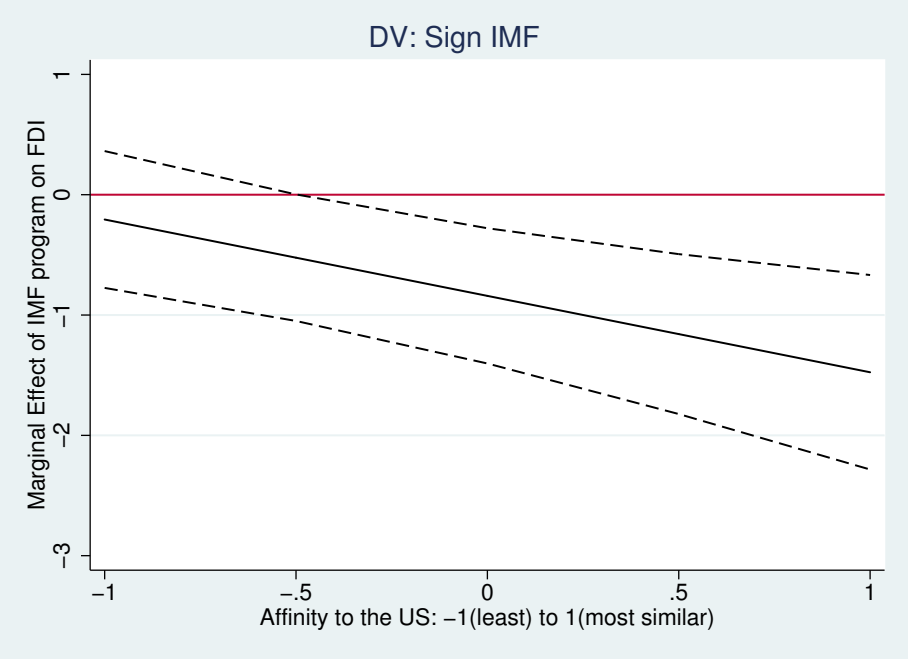

Figure 1: Marginal Effect of Signed IMF across Affinity Score

At the surface, it appears that sign an IMF program does not send a positive signal to foreign investors. Foreign investors are either ignorant to the signing behavior or given only negative signals if the host countries are close friends of the U.S. However, countries under an IMF program which often last for more than a year with typical length of two to four years can increase foreign investment unless they are close friends of the U.S. There are two things worth noting. First, signing may not be enough to send credible signals. Our estimation suggests that countries can better off in attracting FDI during an IMF program but the mechanism is more than simply signing an program. That is, what matters for foreign investors may not be the future expectation about the market reform, but more about ongoing observations of compliance and policy changes. Second, the relationship with the U.S. still affects the investment decision of the foreign investors. Regardless of the choice of the dependent variable, the marginal effect is negatively conditioned. In fact, this finding can hold under both the signaling and commitment mechanism argument. Foreign investors may not see the signal credible if the host country is favored by the U.S., or they simply

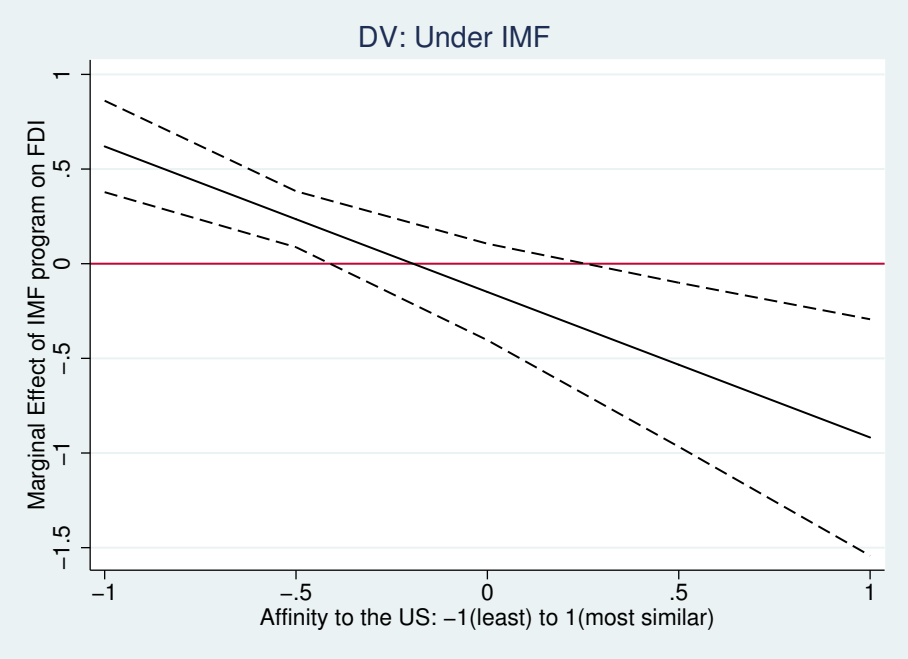

Figure 2: Marginal Effect of Under IMF across Affinity Score

observe that the friends of the U.S. are less likely to fulfill their promises with an IMF program.

As a robustness check, we introduce country fixed effects to our empirical models and report the results below. The main findings are very similar to what we report in Table 1. The effects of signing and being under an IMF program are conditioned by the political relationship between a host country and the U.S. When a country's affinity moves to the negative direction, its ability to attract FDI by signing an IMF program increases and when a country's affinity moves to the positive direction, its ability to attract FDI by signing and staying with an IMF program actually takes a hit.

Conclusion

The paper argues that the catalyzing effect of an IMF program on FDI critically hinged on a participating country's relationship with the major shareholder of the IMF, the U.S. When a country with friendly foreign relations with the U.S., measured by its voting similarity at the United Nations General Assembly, signs an IMF program, the effect of an IMF program on FDI is more negative than when a country with no significant ties with the U.S. signs into an IMF program. We theorize that this is because the closer political relationship with the U.S. undermines the credibility of an IMF program. Since investors usually desire stricter market oriented economic reforms included in an IMF program and their implementation, the likely intervention by the U.S. in IMF programs with friends of the U.S. repel investors.

The theoretical argument and empirical findings of the paper implies that friendship with the U.S. is a mixed blessing when it comes to IMF program participation. On the one hand, friends of the U.S. are given favors by the IMF. But this favoritism comes with the cost as it undermines the credibility of IMF programs, ultimately leading to reduced FDI. Thus, friendship with the U.S. can be a curse to countries who seek to attract more foreign capital.

This study contributes to the study of the catalytic effect by providing a condition under which the catalytic effect is more or less salient. It also contributes to the study of political determinant of FDI by suggesting the interesting interactive effect of a powerful international

institution, the IMF, and a sovereign country, the U.S.

We plan to follow up the current study by looking at different sources of FDI. That is, we are interested in examining if FDI from the U.S. and FDI from the rest of countries respond any differently to IMF programs with and without American influence. In addition, we are interested in examining especially which sectors of economy are more or less affected by the interactive effect.

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Table 2: The Effects of IMF on FDI (Treatment Effect Model - fixed effect)

	Model 1	Model 2	Model 3	Model 4
Affinity to the US	0.036	0.161*	0.041	0.159
	(0.088)	(0.094)	(0.086)	(0.122)
Sign IMF	-0.799**	-1.030***	-0.070	-0.068
	(0.207)	(0.215)	(0.044)	(0.044)
Sign IMF*Affinity to the US		-0.509***		
		(0.127)		
Under IMF	0.122***	0.118***	0.130**	0.030
	(0.041)	(0.041)	(0.056)	(0.092)
Under IMF*Affinity to the US				-0.186
				(0.136)
Population	2.194***	2.259***	2.237***	2.248***
	(0.123)	(0.123)	(0.120)	(0.120)
GDPpc	1.691***	1.654***	1.777***	1.764***
	(0.106)	(0.136)	(0.104)	(0.105)
Trade Openness	0.923***	0.923***	0.935***	0.934***
	(0.075)	(0.075)	(0.076)	(0.076)
Regime Type	0.079	0.076	0.073	0.071
	(0.057)	(0.057)	(0.055)	(0.055)
Natural Resource	-0.006	-0.006	-0.006	-0.005
	(0.005)	(0.005)	(0.005)	(0.005)
Interstate Conflict	0.053	0.053	0.048	0.047
	(0.045)	(0.044)	(0.045)	(0.045)
Internal Conflict	0.063**	0.063**	0.054**	0.056**
	(0.028)	(0.028)	(0.028)	(0.028)
Treatment Stage	DV: Sign IMF		DV: Under IMF	
Under IMF	0.222***	0.222***	1.965***	1.965***
	(0.073)	(0.073)	(0.074)	(0.074)
Reserve	-0.074***	-0.074***	-0.044***	-0.044***
	(0.017)	(0.017)	(0.016)	(0.016)
Debt Service	0.014***	0.014***	0.015***	0.015***
	(0.002)	(0.002)	(0.003)	(0.003)
Account Balance	0.008*	0.008*	0.004	0.004
	(0.005)	(0.005)	(0.004)	(0.004)
Regime Type	0.060	0.060	0.081	0.081
	(0.079)	(0.079)	(0.082)	(0.082)
Number under IMF	0.003	0.003	0.016***	0.016***
	(0.004)	(0.004)	(0.004)	(0.004)
GDPpc	0.046	0.046	-0.183***	-0.183***
	(0.042)	(0.042)	(0.044)	(0.044)
Growth Rate	-0.034***	-0.034***	-0.018***	-0.018***
	(0.006)	(0.006)	(0.006)	(0.006)
Observations	1858	1858	1858	1858

Note: Independent variables are lagged by one year.
Standard errors in parentheses. * p<0.10; ** p<0.05; *** p<0.01.