IMF Stigma: The Role of Own and Neighbours' Experience*

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Abstract

While the consequences and effectiveness of IMF conditionality have long been the focus of research, the possible negative impact of IMF conditionality on countries' willingness to ask for an IMF programme – often termed 'IMF stigma' – has recently received attention from policy circles. The economic consequences of IMF stigma, such as delayed crisis resolution and possible contagion, warrant a better understanding of the scope and drivers of IMF stigma. In this paper we investigate how stigma emanating from IMF conditionality is related to countries' likelihood of entering an IMF arrangement. We use own and neighbours' past experience as indicators of the type of arrangement a country could be expected to obtain if it asked for loans from the IMF, as we conjecture that a negative experience with IMF conditionality during past programmes is closely connected to the perception of stigma. Likewise, observing how neighbouring or similar countries experienced IMF conditionality is likely to affect the perception of stigma. Therefore, we use a large dataset on IMF programmes covering conditionality for the years 1992-201. We find that a country's own past experience of IMF conditionality has a significantly negative impact on the probability of signing another arrangement. Neighbours' past experience of IMF conditionality affects countries' probability of entering an agreement only in some regions.

Keywords: IMF; Financial arrangements; Conditionality
JEL-Codes: F33; F53; F55

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1 Introduction

> *While a certain amount of stigma may be inevitable for an institution that helps members when they get into trouble, too much can interfere with the Fund's effectiveness if it keeps members from approaching the Fund until a crisis is well underway. Stigma also makes it harder for the Fund to play a role in crisis prevention. [...] It is difficult for the Fund to tackle stigma directly, but the problem can be alleviated (or partly offset) by tailoring instruments better to the needs of members.*
>
> - IMF (2008), *Review of the Fund's Financing Role in Member Countries*

> *So, is there really a basis for [...] IMF stigma? Maybe the answer is "no" from the purely macroeconomic point of view but "yes" from political and institutional considerations.*
>
> - Takatoshi Ito (AER 2012), *Can Asia overcome the IMF Stigma?*

The notion of IMF 'stigma' features frequently in the policy debate about the role of the IMF in crisis prevention and resolution. 'Stigma' in the context of IMF lending programmes has been understood as the taint of approaching the IMF for financial support during a crisis. According to the Oxford dictionary, stigma is "a mark of disgrace associated with a particular circumstance, quality or person" while the Merriam-Webster dictionary defines stigma as "a set of negative and often unfair beliefs that a society or group of people have about something". The common understanding of 'IMF stigma' relates both to a mark of disgrace and a set of negative beliefs about a country's economic situation which may arise when a country asks for support from the IMF.

While stigma has been present in the discussions of IMF programmes prior to the Asian crisis, it has become a major issue in the policy debate particularly since Asia's experience with IMF programmes during the Asian financial crisis (e.g. Vreeland 2007, Ito 2012). The notion of IMF stigma has again been brought to the table against the backdrop of increased capital flow volatility experienced by emerging market economies, first in response to the global financial crisis and later in the context of diverging paths of monetary policy in advanced economies.

The IMF has played a growing role in the aftermath of the Global Financial Crisis. After acting as a champion of the global economy for most of the 1990s, the IMF's role was perceived to be waning in the beginnig of the 2000s, given an overall environment of stable growth and low unemployment in developed nations, as well as high rate of

convergence of transition economies. The international spillovers to emerging economies resulting from the financial crisis and the succeeding sovereign debt crisis in Europe arguably brought the IMF back to the forefront of the policy and academic debate. Given the continued importance of IMF resources and expertise for countries' crisis prevention and resolution, a better understanding of the mechanisms governing IMF's lending activity is paramount.

IMF stigma is often mentioned as a reason for modifications of the IMF's approach to crisis prevention and resolution or as a reason for expanding other layers of the global financial safety net (GFSN). If stigma reduces the inclination of a country in crisis to approach the IMF for help in a timely manner, this may have substantial consequences. First, the crisis may become more severe and thereby the likelihood of spillover and the need for larger amounts of financial help later on may arise. Second, it may lead to higher levels of precautionary international reserve holdings than would be prudent otherwise (Jeanne, 2007).[1] Third, the country may turn to other layers of the GFSN, which may be less universally available than IMF financial support (e.g. Scheubel and Stracca 2016).

However, IMF stigma has received surprisingly little attention from the academic community, which has largely been accepting stigma as the other side of the coin of conditionality which comes with IMF programmes. IMF financial support is granted only if the revolving nature of Fund resources is ensured (e.g. Kahn and Sharma 2001). The usual consequence is that, as a precondition for any Fund-supported programme, a country's debt needs to be sufficiently sustainable to ensure that the Fund's resources are paid back. To ensure debt sustainability and to avoid moral hazard, the IMF demands programme countries to sign conditionality agreements (e.g. Bird and Willett 2004). Even though conditionality is agreed to and implemented by the country requesting IMF assistance, conditionality is often perceived as imposed from outside the country, particularly with regard to structural conditionality (Dreher 2009, Conway 2005). The impact of conditionality on macroeconomic outcomes, as well as ownership, political support and poverty is well-researched (e.g. Barro and Lee 2005; Atoyan and Conway 2006; refer to Dreher 2009 for a survey). In analyses of conditionality, stigma is often mentioned as the inevitable other side of the coin and as part of the conditionality cost of financial support from the IMF.

[1] "The East Asian countries that constitute the class of '97 — the countries that learned the lessons of instability the hard way in the crises that began in that year: have boosted their reserves in part because they want to make sure that they won't need to borrow from the IMF again. Others, who saw their neighbors suffer, came to the same conclusion — it is imperative to have enough reserves to withstand the worst of the world's economic vicissitudes." (Stiglitz, 2006, p. 248)

In this paper, we investigate how previous direct and indirect exposure to IMF conditionality may affect countries' willingness to enter IMF programmes. We build on the notion that countries may be reluctant to approach the IMF for financial assistance due to fear of onerous conditionality (Eichengreen 2007). Conditionality is often perceived as compromising sovereignty, making stigma a political issue as well.[2] In the context of IMF lending programmes, political stigma has therefore been understood as the perception of outside interference in a sovereign country associated with IMF financial support.

We assume that, in an attempt to gauge the nature of a potential future IMF financial arrangement, countries consider their own past experience with IMF financial assistance, as well as the experience of their neighbours.[3] In other words, we look at the extent to which past conditionality associated to countries' own programmes, and conditionality associated to IMF programmes signed by neighbours, affects the rate at which countries are willing to enter IMF financial assistance programmes.

Given the two-sided nature of IMF arrangements and the researchers' inability to observe the negotation process between the two interested parties, we focus on the observable outcome variables, i.e. whether a new programme agreement is signed or not. There may be cases where countries have not approached the IMF at all because of stigma, or cases where a staff-level agreement was reached but voted against either by the IMF's Executive Board or by the country's legislative bodies.[4] Since we lack information on arrangements that were initiated but failed to be signed, our dependent variable's counterfactual group includes both countries which never approached the IMF for assistance and also countries for which agreements failed to be reached at some point of the negotiation process. These considerations then impose limits on our interpretation of the results, which we will address in the discussion of our results.

Our paper aims to make a contribution by characterising how previous IMF exposure and conditionality are related to future IMF lending, allowing also for indirect effects

[2]The notion of stigma may be associated with adverse financial market reactions to the negative expectations about a country's economic situation, generated by the the country's request for IMF assistance. In this paper, however, we focus on the notion of political stigma in the setting of the IMF – member country rapport, and which is unrelated to financial market signalling.

[3]In this paper, we use the terms 'neighbours' and 'trade partners' interchangeably, operating under the assumption that trade exhibits regional clustering and incorporates also cultural, linguistic and geographical links. We also look at purely regional clusters in a robustness check.

[4]An IMF staff-level agreement being reached implies that the members of the IMF technical staff and a member country's authorities (usually including representatives of the Finance Department, possibly the Finance Minister, and a country's central bank, possibly the CB governor) pursue negotiations and reach an accord regarding an economic reform agenda and a funding package that could be provided. Attaining a staff-level agreement does not mean that the country is to receive IMF support, not until the agreement is approved by the IMF Management and the IMF Executive Board, as well as the legislative body of the member country.

via trade partners' exposure to conditionality imposed by the IMF. To this end, we hypothesise that a country's decision to enter an IMF arrangement may be influenced by previous experience with IMF conditionality, particularly when it was perceived as onerous or not effective. To measure conditionality, we develop an index based on the IMF's MONitoring of Fund Arrangements (MONA) database. For each country, we compute the number of specific conditions associated with each IMF programme on an annual basis. By closely inspecting the IMF conditionality record in the IMF MONA database, we are able to separate 'hard' from 'soft' conditions. 'Hard' conditions we understand to be essential for disbursements; these have to be met for a programme to start or to continue. 'Soft' conditions we understand to be either indicative targets or conditions which are essential to programme success, but not for disbursment or continuation. We detail this distinction further in section 3.

Since stigma relates to perception and might thus deter countries which had never entered a programme in the past, we do not only look at a country's own experience. We conduct a similar exercise for countries' trade partners and calculate trade-weighted 'hard' and 'soft' conditionality of a country's neighbours, assuming that observing many 'hard' conditions among a country's trading partners would change its perception of IMF financial support.[5] There are two reasons for this. First, neighboring countries are likely to be similar in many respects and hence they are likely to be treated similarly by the IMF. Second, decision makers in a country may know more about the experiences of trade partners than they know about countries they have little contact with. After conditioning on a set of macroeconomic variables and crises, we then investigate whether these measures of conditionality affect a country's probability of entering an IMF agreement for financial help.

We find that an increase of one standard deviation in a country's own previous IMF conditionality is related to a reduction in the country's probability of entering a new IMF arrangement by as much as 3.9 percentage points, ceteris paribus. Countries' previous exposure to hard conditionality is similarly associated to a 1.4 percentage point reduction in the likelihood of signing an agreement with the IMF, a sizable effect relative to the sample average rate of IMF arrangement start, i.e. 0.14%. These results are strongly robust to various specifications.

The association between the neighbours' trade-weighted exposure to IMF soft and hard conditionality and the country's probability of entering a Fund-supported programme is more ambiguous. The full-sample results provide no evidence that neighbours' experience with IMF conditionality might influence countries' likelihood of enter-

[5]We also compute this for regional neighbours as a robustness check.

ing Fund-supported programmes. At the same time, the relation is strongly significant and negative in certain sub-samples. For instance, when conditioning on the occurence of a currency crisis or when examining only those countries with persistent current account deficits, neighbours' previous experience with hard conditionality is related to an 18 percentage point, respectively 3 percentage point decrease in the probability of signing an agreement. Neighbours' previous exposure to IMF hard conditionality is also significant when inspecting certain regional clusters.

Our contribution is twofold. First, we contribute to the policy debate by providing, to our knowledge, the first quantification of how stigma affects the likelihood of agreeing on an IMF programme. In particular, we assume that any government faces a trade-off between the perceived loss of sovereignty and financial assistance and improved macroeconomic conditions. Conditionality affects both elements of this trade-off. Second, we contribute to the academic debate on how conditionality affects the likelihood of entering an agreement for IMF financial support by distinguishing between 'hard' and 'soft conditionality'.

This paper is structured as follows. Section 2 reviews the literature dealing with stigma and IMF conditionality. Section 3 presents our data sources. In section 4 we discuss identification and econometric approach and in section 5 we present descriptive and multivariate results. Section 6 concludes.

2 Background and literature

Conditionality in IMF programmes has not from the beginning been associated with stigma. The first arrangements were with Western European countries; even the US signed two consecutive arrangements in 1963/64. Also, early programmes were in vogue in Latin American countries.[6] None of these programmes were considered as a sacrifice of national sovereignty (Vreeland 2007).

IMF programme conditionality serves two main purposes: it limits the moral hazard associated with external financial assistance and it provides a framework for the macroeconomic adjustment necessary for long-term macroeconomic stability. Large financial assistance programmes from the IMF may shield countries from the need to implement often painful reforms (e.g. Przeworski and Vreeland 2000; Mukherjee and Singer 2010). IMF programme conditionality therefore helps to prevent a country from delaying necessary reforms because of the financial breathing space the IMF programme provides. Also, it serves to safeguard IMF resources, as stipulated in the IMF Articles

[6] By 1965 all Latin American countries had at one point in time signed a Stand-by Agreement (SBA).

of Agreement (Vaubel 1983; Eichengreen 2000; Dreher 2009).[7] However, the IMF's key purpose is also to help a country implement the macroeconomic adjustment policies which are needed to put its economy on a sustainable footing.[8]

First discussions of IMF stigma are associated with the African programmes of the 1970s and 1980s. As the IMF increasingly focused on developing countries, the reforms needed to ensure debt sustainability were more extensive and hence conditionality required for accessing IMF financing was perceived as "heavy-handed and intrusive" (Vreeland 2007; Reichmann and de Resende 2014). In addition, typical IMF conditionality aiming at macroeconomic stability, such as recommendations regarding the exchange rate policy, was perceived as difficult to agree to for recently independent African countries, as the sovereignty in setting these policies was perceived as a key achievement of independence (Vreeland 2007). For example, Nigeria, although negotiating with the IMF from 1980, only signed an IMF programme in 1987 when political leaders had pushed through all required reforms ex-ante to avoid political stigma (Vreeland 2007).

The perception of stigma changed with the Asian crisis for two main reasons. First, having to ask for IMF support was perceived as particularly humiliating for the Asian countries. For example, Korea was particularly proud of having overcome the negative effects of the war in the 1950s and asking the IMF for assistance was construed as having lost economic strength (Blustein 2001). In Thailand, the need to bring in the IMF affected trust in national institutions (Warr 1999). In Indonesia, the liquidity crisis in the banking and real sector, despite an on-going IMF programme, sparked demonstations and caused a confidence crisis which was extended to the political class (Djiwandono 2003). No Asian country has asked for an IMF programme since (Reichmann and de Resende 2014).

Second, during the Asian crisis, IMF policy recommendations were perceived as ill-fitting and as particularly harsh (Schmitt-Grohé and Uribe 2012; Sussangkarn 2014). For example, Indonesia had floated its exchange rate shortly prior to asking for an IMF programme, as it became more and more difficult to maintain the value of the rupiah within its crawling band. The resulting depreciation during the peak of the crisis caused liquidity shortages, which necessitated bank restructurings. Particularly the IMF's recommendations to implement these without deposit guarantees are considered a cause of wide-spread bank runs (Ito 2012).

From an economic point of view, the second reason is more concerning, since ill-fitting conditionality could contribute to the emergence of political stigma. Economically sub-

[7] Article V, Section 3 (a).
[8] Article I, (v) and (vi).

optimal outcomes could lead to protracted problems which might exacerbate a crisis and induce potential contagion (Khan and Sharma 2003), thus further contributing to a negative connotation of IMF conditionality. If IMF conditionality is not perceived as an effective 'medicine', governments might try to avoid the cost of seeing the doctor altogether.

The literature finds mixed results regarding the effectiveness of IMF programme conditionality, On the one hand, evidence is particularly mixed regarding key macroeconomic variables. Bird's (2001) review of econometric analyses of IMF programmes indicates limited effectiveness of IMF programmes. Barro and Lee (2005) do not find significant effects of IMF programmes on investment, inflation, government consumption or international openness. However, their results indicate that IMF programmes may in fact have reduced GDP growth rates. Similar results are found by Dreher (2006). On the other hand, conditionality seems to be effective in re-designing tax systems to generate more revenues (Crivelli and Gupta 2014).

Despite the public concern that IMF programmes lead to increased poverty levels, the literature is overwhelmingly positive regarding the impact of IMF programmes on social spending. For example, Clements et al. (2013) find that IMF programmes for low-income countries are associated with significantly higher education and health spending. Caraway et al. (2012) show that democratic institutions positively affect the IMF's responsiveness to social preferences.

Another effect that might contribute to the limited effectiveness of IMF conditionality and thereby to the resistance to it is ineffective implementation of IMF macroeconomic adjustment programmes, which is often related to programme ownership of the national authorities (Khan and Sharma 2003). The success of an IMF programme requires decisive action from country authorities. There is a multitude of factors contributing to ineffective implementation by national authorities. It may first and foremost be triggered by outcomes which are perceived or de facto economically and socially sub-optimal, thereby negatively shaping the political climate. Other factors include ex ante political conditions[9] and limited administrative capacity[10] which could contribute to sub-optimal economic or social outcomes, leading to a vicious circle of sub-optimal out-

[9]Ivanova et al. (2001) and Bird and Willett (2004) find that political conditions at the onset of programmes have a large influence on how successfully they are implemented.

[10]The literature in fact recognises something we could describe as 'conditionality stigma' related to the unwillingness to reform. Because an IMF programme requires macroeconomic adjustment, governments unwilling to reform may either not agree on an IMF programme or accept it only grudgingly in the wake of a severe liquidity crisis, but then implementing it insufficiently. Bird's (2002) results that the cross-country track record of implementation is poor and seems to worsen could be interpreted as evidence that 'conditionality stigma' or unwillingness to reform at all becomes more widespread.

comes triggering more limited ownership among country authorities. As a consequence, IMF programmes may not only become associated with weak authorities and limited macroeconomic adjustment (Reinhart and Trebesch 2016), but also with the IMF itself, contributing to the negative connotation of IMF conditionality and to what is often referred to by the term IMF stigma.

While it has been well researched how ill-fitting or ill-implemented IMF conditionality has been in the past, the impact this might have on the inclination of other potential IMF customers to ask for IMF financial support has not received much attention. In this paper, we acknowledge that both ill-fitting, ill-implemented or so perceived conditionality can be observed by other potential beneficiaries of IMF programmes and that this observation may shape beliefs about the potential success of own IMF programmes. We quantify how much this observation affects the likelihood of approaching the IMF for support by looking at countries' own experience with IMF conditionality and at trade partners' and regional neighbour's experience with IMF conditionality. To that end, our work is also related to the research modelling regional dependencies or spatial lags. We provide the to our knowledge first quantification of IMF stigma.

3 Data

This paper uses data on Fund-supported arrangements drawn from the IMF Monitoring of Fund Arrangements (MONA) database, data from the IMF's Direction of Trade Statistics (DOTS) as well as macroeconomic data and balance of payments statistics data from the GFSN data base compiled by Scheubel and Stracca (2016).

3.1 Monitoring of Fund Arrangements (MONA)

IMF MONA data are the primary source for information on both key programme parameters such as duration and envelope as well as on a detailed account of programme conditionality. The data are publicly available for the period from 1992 to 2016 and cover a panel of annual observations on 188 IMF members.[11] Of the 188 sample countries, 119 have had at least an IMF programme in the 23-year period.[12] Figure 1 shows the share of sample countries participating in IMF loans over time. The proportion of participating sample countries peaked in 1996 and in 2010, when 72 and 70 countries

[11] In the sample, the Federal Republic of Yugoslavia and Serbia & Montenegro are considered the predecessors of Serbia. Our combined dataset includes essentially all IMF members, considering that the latest country to join the IMF, Nauru, did so only in April 2016.

[12] For a list of countries and the number of Fund-supported arrangements signed by each country during the sample period, see Table 1.

had an on-going programme with the Fund. On average, 30 percent, or 57 of the 119 sample countries are in a Fund-supported arrangement during any given year. The bottom graph of Figure 1 presents the distribution of the sample countries by the number of years during which they were part of an active IMF programme. While one country (Mali) took active part in Fund-supported arrangements during the entire sample period, an average country spends approximately 6 years and 11 months in a programme, while median participation is 5 years.

For catering to the various needs and circumstances of its members, the IMF has at its disposal a variety of arrangements, which are available to countries experiencing actual or potential balance of payments problems in the short or medium-term. Concessional loans, currently carrying a zero percent interest rate through end-2016, are available only to low income countries. Table 2 gives a concise depiction of the main attributes of all types of arrangements offered by the Fund during the sample period, including the access limits, lengths and repayment periods of the various programmes. It indicates which of the loans are granted under concessional terms and which ones can be seen as precautionary. Table 2 also lists the sample active years for each type of arrangement and explains the transformation of several arrangements over the years.[13]

The MONA database contains a cumulative history of nearly all arrangements with the Fund since 1992, both concessional and non-concessional. Table 3 summarizes the total number of arrangements in the sample by type and Figure 2 renders the number of sample arrangements by type, categorizing them into concessional and non-concessional programmes.[14]

The bulk of non-concessional lending is given in the form of Stand-By Agreement (SBA) and Extended Fund Facility (EFF) loans, with 181 and 43 programmes in sample, respectively, while concessional lending to Low-Income Countries most often takes the form of an Enhanced Structural Adjustment Facility (ESAF) or a Poverty Reduction and Growth Facility (PRGF), each with a total of 145 and 102 arrangements in sample.[15]

To get a sense of the evolution throughout the sample period, Figure 4 compares their duration in years and their size, relative to GDP and IMF quota. The regional breakdown makes it clear that Fund-supported programmes in Europe in the late 2000s are

[13]For instance, the SAF preceded the ESAF, which was in turn replaced by the PRGF in November 1999 "to include policies more clearly focused on growth and poverty reduction".

[14]There is a distinguishable difference between concessional and non-concessional loans, as the former have the explicit goal of correcting misalignments in balance of payments while the latter are directed toward poverty reduction and structural reform. We conduct sensitivity analyses to consider the extent to which this divide is relevant in our study.

[15]A great deal of the literature differentiates on the basis on concessionality when investigating IMF lending and its determinants. We will look into this divide further in section 5.2.

much larger than previous IMF loans, both relative to IMF quota and relative to GDP. The average loan reaches about 3.7% of GDP (median 2.4), but European programmes average as much as 8 percent of GDP after 2009. While, by design, the average country has access to 152 percent of its member quota in a year (median 75%), the considerably larger loans to Greece and Ukraine drive up the average access for European countries to 867 percent of member quota after 2009.

Figure 5 shows a similar breakdown of arrangement size and duration along countries' level of wealth. This brings out the structural divide brought about by the financial crisis: while advanced economies had contracted zero loans since the beginning of the sample in 1992, average arrangement size in the group of advanced economies reached 18 times their quota and nearly 13 percent of GDP in the period since 2008. There was also a noticeable hike within the group of emerging markets, where arrangements averaged 134% of quota for the 1992-2007 period, and 500 percent of quota from 2008 onwards. Moreover, despite an apparent increasing trend in programme duration in both emerging and developing economies over the sample, there seems to be a level shift in average programme duration in the group of developing countries around the time of the East Asian crisis: arrangements in developing economies lasted on average 15 months before 1998 but 2 years and 10 months since then.

More importantly, MONA offers interesting insights into conditionality at each stage of arrangement review throughout the sample.[16] There are 6 types of conditions listed in MONA: indicative targets (ITs), structural assessment criteria (SACs), prior actions (PAs), structural benchmarks (SBs) and structural and quantitative performance criteria (SPCs and QPCs). The conditions correspond to eleven areas of economic activity such as financial sector, general government or labor markets. See Table 4 for a full-sample complete list of economic areas associated to programme conditionality, as well as a list of potential implementation statuses in the current version of MONA (starting in 2002).

Since we are interested in the degree of intrusiveness of IMF conditions, we divide conditionality into two distinct groups, based on their stringency. Together with prior actions, performance criteria are considered hardest. Prior actions (PAs) describe steps that a country needs to take before an arrangement may start, a review may be completed or a tranche of financing may be disbursed, while performance criteria – quantitative (QPCs) and structural (SPCs) – need to be met for the continuation of an arrangements bar cases when the Fund issues a waiver. Structural benchmarks (SBs) and indicative

[16]Historical MONA covers the period 1992-2002 and contains information on ex-ante conditionality, while current MONA allows for tracking of conditions throughout the programme and determining their completion status. This makes it possible to inspect programme implementation starting with arrangements approved in 2002.

targets (ITs) are conditions that the IMF expects the countries to meet, but failure to do so does not bring an arrangement to a halt. We use this distinction to create our main index of conditionality, as further described in section 4.3.

3.2 Direction of Trade Statistics (DOTS)

In order to measure the importance of neighbors' experience with the IMF for our empirical estimation, we use the IMF's Statistic Department Direction of Trade Statistics (DOTS) database to identify a country's "neighbours".[17] We download annual time series of merchandise export data for all available countries and years in the sample.[18] This allows us to identify each country's trading partners in any given year. We posit that trade linkages are a dependable proxy for countries' relationships: if country A exports a large share of its total exports to country B, it will have a lot of contact with that country and incorporate country B's experience with IMF lending into its decision to seek Fund support with a greater weight. The yearly export-shares derived from DOTS are then used to create a Neighbor Trade-Weighted Index, which is in turn used to scale the effect on country A of its neighbors' experience with Fund arrangements.

Figure 7 offers a glimpse into what the combined data from DOTS and MONA yield. As an example, we selected several countries and illustrated the evolution over time of the trade-weighted share of neighbours which are involved in an IMF supported arrangement (the continuous line corresponding to the lefthand scale). Looking at Vietnam, for instance, note that the share of its neighbours which had an IMF programme peaked during the late 1990s, with a significant decline in proportion of neighbours engaged with the Fund in the 2000s. The interrupted and dotted lines depict neighbour conditionality: total number of neighbours' trade-weighted conditions (interrupted) and intrusive conditionality alone (dotted line, PAs and PCs). A peak in neighbour trade-weighted conditionality is apparent during the early 2000s.

Given the nature of IMF lending and the Fund's role in supplying member countries with affordable resources when faced with financial distress, our final dataset includes

[17] We intend to further use geographical data (latitude, longitude), as well as language and cultural connections between countries to estimate a distance- and size-weighted average of neighbors' experience with the Fund in a spatial autoregressive model: Kelejian and Prucha's (2001) modified Moran-I test for spatial autocorrelation in discrete choice models rejects the null of no spatial autocorrelation in IMF program participation, suggesting that there might exist regional clustering in regards to how Fund support is perceived.

[18] For the following 13 sample countries export data is not included in the DOTS database: Antigua and Barbuda, Bhutan, Botswana, Eritrea, Kiribati, Kosovo, Lesotho, Namibia, Palau, South Sudan, Swaziland, Timor-Leste, Tuvalu. For these countries, we further use DOTS to back out import-partnerships and proxy neighbours as importing trade partners.

information on recent and ongoing banking and currency crisis sourced from Valencia and Laeven's (2012) updated systemic banking crises database, as well as capital control measures sourced from Fernández et al. (2015). Macroeconomic and political control variables are taken from the GFSN database and from the IMF's World Economic Outlook (WEO) database.[19]

4 Econometric considerations and estimation approach

4.1 Identification

The goal of this paper is to understand the extent to which IMF conditionality is related to countries' likelihood of entering IMF-supported arrangements. We are particularly interested in a potentially deterring effect of the prospect of IMF conditionality as a proxy for what is understood as political IMF stigma.[20] In our attempt at shedding light on the correlation between previous IMF experience with conditionality and country's probability of seeking IMF support, we are faced with the endogeneity of IMF exposure. To the econometrician, an ideal experiment would allow prior experience with IMF arrangements to be randomly assigned when inspecting two groups of countries, each with similar macroeconomic markers and facing similar potential needs for IMF support. Evidently, such an experiment is unfeasible.

Our main challenge relates to separating the effect of IMF conditionality, or past experience of it, from other effects which determine whether a country agrees on an IMF programme or not. Countries may face different types of b.o.p. problems and only for some of these they may prefer to approach the IMF for help. For example, a short term liquidity, or specifically currency, crisis may be addressed without any external support if a country has sufficient foreign exchange reserves or access to a swap or repo line from a reserve-currency issuing central bank. Countries with more protracted structural b.o.p. problems used to seek IMF help more often in the past, but some IMF members also had access to RFAs. This implies that both supply and demand factors shape the probablity of entering an IMF programme, with the deterring effect of IMF conditionality only being one of the demand factors. Consequently, to identify this single demand factor,

[19] Appendix A presents sources and detailed definitions of the variables used in this study.

[20] We remain astutely aware of the possible normative interpretation of the concept of stigma. Nowhere in the paper do we aim to adhere a normative connotation to the term of stigma. Instead, we view countries acting as rational actors which utilize IMF resources in a most effective manner. The question remains: why do countries facing similar macroeconomic circumstances make different decisions about turning to the IMF for assistance? And what role does own and neighbours' conditionality play in this decision?

we have to make sure that we control for all other demand and supply factors at any given time.

To this end, we condition on key determinants of a country's macroeconomic situation, and particularly its external position. Aside from several baseline macroeconomic variables widely regarded in the literature as being highly correlated to the probability if seeking IMF support, we also control for additional macroeconomic factors, as well as institutional and political economy determinants. Moreover, we condition on a country experiencing a crisis according to several crisis measures from the literature, as well as significant deviations from its long-term average in the current account. We also use the measures provided in Scheubel and Stracca (2016) to control for available sources of external financial support. Assuming that we have included all other determinants of agreeing on an IMF programme, we can now look at the effect of conditionality.

As described in section 2, there are different ways in which IMF conditionality may deter country authorities from agreeing to an IMF programme in the face of an actual or potential balance of payments need. In other words, there are several different channels through which IMF stigma may work. On the one hand, the decision to seek IMF support is related to the effectiveness of conditionality. Here, two alternative scenarios arise. Firstly, countries which in the past have received IMF assistance might be less likely to turn to the IMF for support because the conditionality associated with previous arrangements was particularly conducive to stability. Therefore, we might observe a negative relation between past conditionality and probability of entering IMF programmes driven by the soaring efficacy of past conditionality. In other words, it may be the case that countries which in the past entered IMF arrangements are less likely to turn to the IMF repeatedly because the previous arrangements were well-designed and adeptly targeted the country's issues in a manner that made subsequent IMF support redundant.

Conversely, the negative correlation might be explained by a concern that conditionality would not lead to the desired macroeconomic adjustment or even bring on adverse economic and social consequences. This scenario would be relevant for countries which have had an IMF programme in the past, which was perceived as unsuccessful, or for countries which have *observed* an IMF programme perceived as unsuccessful. This is particularly hard to measure as perceptions are difficult to quantify. It seems safe to assume that a programme is perceived as particularly unsuccessful which for one entails a large number of conditions, particularly those that need to be met at the beginning of a programme, and which for another was not effectively implemented. These assumptions are in line with two strands of the literature which evaluates the effectiveness of IMF conditionality. The first one looks at the number of conditions, possibly separately for

different types of conditions and different fields. The second one links each condition with the success of implementing it. We follow Caraway, Rickard and Anner (2012) in looking at the number of conditions for specific types of conditions as detailed below. This brings us to a first testable hypothesis.

Hypothesis 1a *Conditioning on key macroeconomic variables and other relevant explanatory variables, a country exposed to conditionality associated with past IMF programmes should, ceteris paribus, be less likely to enter an IMF arrangement again.*

As *Hypothesis 1a* by definition excludes those countries which never had an IMF programme in the past, we also test for the possibility of learning by *observing* the experience of other countries. It seems safe to assume that a country should be less likely to agree on an IMF programme if IMF conditionality has been perceived as less successful in countries which are very similar or very close. Defining close countries in a geographical sense results in a potentially limited sample. However, it is likely that a country can observe the experience of its trading partners with the IMF. In today's interconnected world, every country should have at least a few trading partners with IMF programmes. Indeed, in our sample every country has on average 39% of the trading partners with at least one IMF programme in the past. We are able to expland our sample of experience with the IMF by looking at very similar countries in terms of macroeconomic structure, at a country's main trade partners and at the countries in a region, and including a measure of these similar or close countries' experience with IMF conditionality. In particular, we use the same measure of conditionality as for own experience, but weigh it with the trade shares according to IMF Direction of Trade Statistics (DOTS). We extend the above hypothesis as follows:

Hypothesis 1b *Conditioning on key macroeconomic variables and other relevant explanatory variables, a country whose 'neighbours' (defined either as similar countries or as regional neighbours or as trade partners) were exposed to conditionality associated with past IMF programmes should, ceteris paribus, be less likely to enter an IMF arrangement.*

On the other hand, country authorities may fear that an IMF programme could be perceived as outside interferance in the governing of a sovereign actor, reducing the administration's legitimacy. Historically, the IMF has been perceived as stigmatising mainly in Asia, but has elsewhere been embraced as a vehicle for reform, as for example in South-Eastern Europe. Therefore, we can test this regional scope by simply comparing similar observations between two regions, in particular between Asia and other regions.

To illustrate this point, Figure 8 shows that throughout the sample period, the share of IMF programmes signed by Asian countries declined gradually since the 1990s and was lowest in the world after 1998, compared to other geographic regions. At the same time, the largest proportion of arrangements were signed by African countries. Moreover, our dataset allows for testing the effect of conditionality not only on a regional basis, but also controlling for countries' level of development, or the concessional quality of IMF arrangements.

Hypothesis 2a *Conditioning on key macroeconomic variables and other relevant explanatory variables, a country in Asia is less likely to enter an IMF arrangement, particularly after 1998.*

Finally, there have been a few changes to IMF conditionality which further help us identify an effect of conditionality on the likelihood of agreeing on an IMF programme. The IMF refined its guidelines on conditionality in 2009 to include fewer structural conditions. In this context, it removed the so-called structural performance criteria from the conditionality menu to both reduce the perception of interference and to make programmes more macro-critical and hence effective in achieving macroeconomic stability. This poses an additional challenge to our identification strategy, stemming from the supply side of Fund-supported programmes. As the IMF adjusts its offering of lending instruments to better suit the needs of its member countries, possibly in response to decreasing 'demand' for its products, this might have an impact of our outcome variable, assuming an increase in countries' willingness to take part in more-flexible programmes, for instance.

Hypothesis 2b *Conditioning on key macroeconomic variables and other relevant explanatory variables, we expect the effect of conditionality to be smaller after 2009.*

4.2 Econometric approach

Our econometric approach is based in spirit on Barro and Lee (2005) as we also model the agreement to an IMF financial support programme as a binary variable that reflects a latent decision process.[21] Our main dependent variable is, then, a dichotomous measure of whether a country starts an IMF programme during a given year. We do not look at the size of IMF loans.

[21] Similar to Barro and Lee (2005), we further use a second dependent variable defined as the number of months that a country spends under an IMF programme during a given year.

Consider the underlying, latent decision-process of entering an IMF programme first. Agreeing to an IMF-supported arrangement is not only influenced by macroeconomic conditions, but also by political economy variables and stigma, including both demand and supply effects. The outcome variable of this latent decision process is censored at 0 and hence the agreement to an IMF programme is observable as a binary choice.

The latent process can be written as:

$$I_{it*} = \alpha + \beta X_{it} + \theta Z_{it} + \gamma J_{it} + \xi G_{it} + \eta C_i + \delta * T_t + u_{it}. \quad (1)$$

I_{it*} is a binary variable taking the value 1 when country i agrees on an IMF programme in time t.[22] The vector $X_{i,t}$ includes macroeconomic explanatory variables, such as real GDP per capita growth, total international reserves in months of imports and the current account balance as a percentage of GDP.

Vector Z_{it} contains a weighted average of country i's neighbours economic data (i.e. a weighted average of the neighbours' X_{it} variables). We consider the number of trade partners which sum up to a country's total exports. The variables are then weighted by the respective share of a neighbour in country i's exports.

Vector J_{it} is our contribution to the model in that it contains proxies for IMF stigma and it includes own and neighbours' total and 'hard' conditionality. Own past conditionality is calculated as the moving average of the total number of conditions for a country which was part of an IMF arrangement during the past 5 years. Past hard conditionality is calculated in the same manner, but only considering a rolling average of the total number of prior actions and performance criteria. We further include in this vector a weighted index of past total and 'hard' conditionality of neighbours. This index is computed as the total number of conditions for those trade partners which in the past had an IMF programme. Hard neighbour conditionality, in a similar manner, only considers prior actions and performance criteria. We weigh this index by the export share and calculate a 5-year moving average. In our sensitivity analysis we consider several measures of IMF conditionality.

Building on the baseline specification, vector G_{it} is included in subsequent estimations, forming also our sensitivity analysis. It includes additional macroeconomic controlss, variables which indicate a country's external vulnerability, measures controlling

[22]Given the importance of the timing of events when interpreting the results, we follow Knight and Santaella (1997) and construct an alternative dependent dichotomous variable, which equals unity for country i in year t if a country starts an IMF programme in quarters 1 and 2 of year t or quarters 3 and 4 of year $t-1$. Results available upon request. [We present the results of the alternative estimations in section 5.2.]

for a country's 'outside options', such as its alternatives of access to the Global Financial Safety Net (GFSN). It also comprises several indicators of currency, current account and fiscal crises. Furthermore, vector G_{it} contains the instrumented history with the IMF, comprising institutional and political economy variables: voting with the US in the United Nations General Assembly and share of IMF quota count among the considered political economy variables for the various robustness checks of our baseline model specification.

4.3 Definition of variables and descriptive statistics

In modelling the probability of starting an IMF financial support programme, we follow Knight and Santaella (1997) and Barro and Lee (2005) and condition on a set of macroeconomic variables which reflect both a country's demand for an IMF loan and the IMF's 'supply' of it. Moreover, we condition on a set of institutional variables, as well as several crisis measures.

We define our dependent variable to be a binary index taking the value one for a country-year when an IMF arrangement has started. In the baseline specification, we do not differentiate the analysis by type of arrangement and include all financial programmes offered by the Fund during the sample period. Of the 4324 observations in our basic sample, 12.3 percent, or 532 observations are country-years when an arrangement was started.[23]

Our baseline specification includes total international reserves in months of imports, current account balance relative to GDP and real per capita GDP growth as main explanatory variables. These variables were identified in previous empirical research as important determinants of IMF programmes. A country is more likely to seek IMF financing when it has a balance of payments need. That can mean low levels of reserves or a deficit in its current account. Our international reserves explanatory variable is expressed in months of imports and the current account is relative to GDP. Both international reserves and the current account are expected to be inversely correlated to a country's likelihood of demanding IMF support. Real per capita GDP growth is expected to be negatively correlated to our dependent variable as countries with relatively low real per capita GDP growth are more likely to desire an IMF programme.

Next we aim to document the effects of own and neighbours' experience on a country's probability of starting an IMF-supported programme. We use conditionality in

[23]While there are 563 arrangements recorded in MONA between 1992 and 2015, some countries have multiple arrangements start during the same year. Alternatively, we can define our dependent variable as being equal to 1 for the years when a country starts at least one arrangement with the IMF.

past IMF programmes as a proxy for experience and, in particular, we count the number of conditions associated with each arrangement. We contend that a country's own previous run with IMF conditionality will be negatively correlated to its probability of seeking IMF assistance. Given our goal to investigate the degree to which the experience of neighbours is associated with a country's likelihood of seeking IMF support, we test whether having neighbours who were previously exposed to IMF conditionality will negatively affect a country's probability of entering a programme. To ensure symmetry, we also control for neighbours' macroeconomic conditions in the baseline specification. Neighbours' economic variables are defined similarly to the country variables and are weighted by the neighbours' share in country i's exports.

Table 5 presents summary statistics of the variables used in the baseline estimation. On average, 13 % of the country-year observations in the sample pertain to arrangement start years. Real per capita GDP growth in the sample is around 2.5 percent and countries hold reserves equivalent to 4.4 months of imports. On average, nearly a third of a country's neighbours are engaged in an IMF supported programme.

As part of our sensitivity analyses, we include a host of other economic variables and institutional indicators which have been found to be strong determinants of economic development.[24] We include the World Bank institutional measures for the quality of the rule of law and political stability, a country's voting pattern in the UNGA relative to the US, as well as share of IMF quota. Additionaly, we include several more macroeconomic covariates, such as: trade openness, growth rate of the terms of trade, export growth and a dummy to reflect a country's history with the IMF: the dummy takes the value 1 if country i has had at least one active Fund-supported programme during the previous five years.

Focusing on groups of countries with clear financing needs, we estimate our baseline model by conditioning on the occurence of several crisis. We first zoom in on countries experiencing a *Stop*, i.e. countries facing a sharp decrease in gross private inflows. We also condition on countries facing *Flight* episodes: countries which experience a sharp decrease in gross private outflows. Dummies indicating banking and currency crises are episodes of systemic banking crises and currency crises, as defined by Laeven & Valencia (2012). Moreover, we also focus on countries facing current account imbalances, by conditioning on a binary variable taking the value one if a country's CA in year t is one standard deviation below its 5-year moving average.

[24] See section 5.2 for variables included in the robustness checks.

5 Empirical results

We begin by presenting our baseline estimation results, as described in section 4.2. We then include additional controls, both to reflect the countries' economic and political environments, but also to capture developments in trade partners' economic climate. Including additional control variables, we test the robustness of our results.

5.1 Benchmark and neighbor trade-weighted results

Table 6 presents the results of our linear probability baseline estimation. Given that a country's macroeconomic conditions are essential in determining the likelihood of the country entering into a Fund-supported programme, we begin by estimating a parsimonius model where we control for macroeconomic variables regarded in the literature as determinants of IMF arrangements. As expected, column (1) of Table 6 shows that weak real per capita GDP growth and low levels of international reserves are correlated to a higher probability that the country will seek IMF assistance. Both macro variables are also statistically significant. While the current account balance is not statistically significant at traditional levels, it displays the expected sign. A country's own previous experience with the IMF, included in the regression as a dummy taking the value one when the country has had an IMF-supported programme in the previous five years, is negatively correlated to its probability of entering a new arrangement, though the correlation is not statistically significant.

Adding to the sparse model described above, we introduce our variables of interest: the two main conditionality indices. The first is a country's own prior experience with IMF conditionality. We expect that a country's own previous experience with the IMF, quantified by the average number of total conditions associated to programmes active in the previouos five years, will play a role in its decision to ask for renewed assistance. We discussed the possible directions of this correlation in more detail in section 4.1. The second variable of interest introduced in column (2) of Table 6 is trade partners' total conditionality. We compute neighbour trade-weighted conditionality as a moving 5-year average of the total number of conditions associated to neighbour's arrangements. We use export shares as the weighting factor. We expect that neighbours' conditionality would be correlated to a country's probability of approaching the IMF for support.

First, note that adding our variables of interest to the sparse model does not change the quality of the model: the primary macroeconomic variables included in the estimation are nearly unchanged. The correlation between a country's past exposure to IMF conditionality and its likelihood of starting an arrangement is strongly statistically

significant. To put the coefficient in perspective, an increase of one standard deviation in a country's own previous IMF conditionality is related to a reduction in the country's probability of entering a new IMF arrangement by as much as 3.9 percentage points, all else equal. Conditionality associated to neighbours' previous IMF exposure is weakly positively correlated to a country's probability of reaching out to the IMF for support. This would indicate that a country is more likely to seek IMF assistance when its neighbours have experienced IMF programmes incorporating numeorous conditions.

This weak positive correlation between neighbour conditionality and likelihood of starting a programme dissipates when we further include macroeconomic control variables for the neighbouring countries, weighted by trade shares, as shown in column (3) of Table 6. In column (3) we mirror the own country macro variables by including the trade-weighted, per capita real GDP growth of trading partners, as well as their weighted international reserves in months of imports and neighbours current account positions. Neighbours' macroeconomic covariates display the expected signs, and we understand the relatively strong, statistically significant negative correlation between neighbours' growth and countries' likelihood of starting IMF programmes to be a sign of possible spill-over effects: having flourishing neighbours which exhibit strong per capita GDP growth could point to increased trade, higher exports for the country of interest, possibly associated with a stronger balance of payments and diminished need for IMF assistance. Neighbours' trade-weighted reserve levels and their CA positions do not appear to be correlated to own country's probability of entering a new programme.

Columns (4) and (5) of Table 6 are identical to columns (2) and (3), with the sole exception that we use a different conditionality measure. In these last two columns of our baseline regression table, we substitute previous conditionality by previous hard conditionality (prior actions and performance criteria), both for own country, as well as for neighbours. The quality of our results remains unchanged. Own country's and neighbours trade-weighted macroeconomic covariates continue to be persistent to the inclusion of the hard conditionality indicator and display the expected correlation.

Neighbours' conditionality remains statistically non-significant when controling for neighbours' macroeconomic situation, while country's own past hard conditionality is strongly associated with a negative effect on starting renewed IMF arrangements. Although larger in absolute value, the estimated coefficient of own past conditionality (0.0084 compared to 0.0057), an increase by one standard deviation in countries' past experience with hard IMF conditionality is negatively associated to a 1.4 percentage point reduction in the likelihood of signing an agreeement with the IMF (a 10 percent reduction). Despite its crudeness, we interpret this result as giving credence to our

hypothesis that prior experience with IMF total and hard conditionality influences a country's decision to seek Fund support in a negative manner.

We consider column (5) of Table 6 to be our benchmark specification. In the next section we investigate whether the negative effect of own and neighbours' experience with IMF conditionality remains significant when looking at crisis episodes, including several more macroeconomic controls, as well as institutional and political economy covariates. We also look at separate regions and split the sample in two time intervals, before and after 1997, as described in section 4.

5.2 Sensitivity analysis

Tables 7 through 10 start from the baseline specification in column 3 of Table 6 and control for several macroeconomic, institutional and political economy variables that were found to be important determinants of IMF lending in the literature, as surveyed in section 2.

Tables 7 and 9 show that controlling for macroeconomic variables, both of the country itself, as well as of countries' neighbours, does not alter the suggested result from our benchmark estimation. What is more, the effect of neighbours' conditionality on a country's likelihood of turning to the IMF for assistance remains statistically significant and is strenghtened when controlling for countries' episodes of real effective exchange rate overvaluation. Even though controlling for trade partners' macroeconomic conditions renders the coefficient of neighbours' trade-weighted conditionality smaller in magnitude, the effect remains still significant and of the expected sign. These results suggest that the negative effect of trade partners' conditionality are robust to including various macroeconomic controls, both for the countries of interest, as well as for their neighbours.

Including political economy variables in our specifications, the sign of the correlation, though the statistical significance is washed away, as shown in table 8. This results merits further investigation. In Table 10 we condition on the occurence of various crises, and in the last column include a dummy which takes the value 1 if a country's moving average for the previous 5 years was one standard deviation below its long term average, to signal a persistent deficit. Table 10 yields mixed results, and here it would be interesting to look further into the timing of the variables in our sample.

6 Conclusion

IMF stigma, or the question why some countries ask the IMF for financial assistance in a crisis while others do not, has long been debated by policy circles in the context of global crisis insurance. After all, if a country which needs financial support does not ask for it, crises may be left unaddressed and potential contagion might pose risks to global financial stability. Yet, the understanding of the term 'stigma' seems to differ widely and therefore also the understanding whether, and if so – to which extent, it may constitute a problem. The academic community often mentions stigma in the context of analyses of conditionality as the inevitable other side of the coin and as part of the conditionality cost of IMF financial support. However, the policy debate recognises a reluctance to ask the IMF for financial support which goes beyond the expected opposition against often painful macroeconomic reforms. Some concerns relate to the perceived loss of sovereignty in implementing policies which are perceived as externally imposed.

In this paper, we understand IMF stigma only as the political reluctance to agree on an IMF programme, as measured by the likelihood of agreeing on a programme at a given point in time. We do not look at potential financial market reactions to IMF programmes or how the expectation of such reactions might shape policy makers' likelihood of agreeing on an IMF programme.

This paper's contribution is twofold. First, we contribute to the academic debate on how conditionality affects the likelihood of asking for IMF financial support by separating not only 'hard' from 'soft' conditions, but also by looking at how the perception of 'hard' and 'soft' conditions affects the willingness to agree on an IMF programme. Second, we contribute to the policy debate by providing to our knowledge the first quantification of how stigma affects the likelihood of agreeing on an IMF programme. In particular, we assume that any government faces a trade-off between the perceived loss of sovereignty and financial assistance and improved macroeconomic conditions. Conditionality affects both elements of this trade-off. Conditionality which improves future macroeconomic outcomes should be considered positively, and conditionality which is perceived to go beyond what is needed is likely to contribute to the perception of lost sovereignty. In separating these two, we take a closer look at IMF conditionality recorded in the IMF MONA data base. We separate between 'hard' conditions and 'soft' conditions. 'Hard' conditions we understand to be essential for disbursements and which have to be met for a programme to start or to continue. 'Soft' conditions we understand to be either indicative targets or conditions which are essential to programme success. In addition, we do not only look at a country's own experience, since stigma relates to perception

and might thus deter also countries which never asked for a programme in the past. Therefore we also look at 'hard' and 'soft' conditionality of a country's trading partners, assuming that observing many 'hard' conditions among a country's trading partners would change its perception of IMF financial support.

For showing the effects of conditionality on a country's likelihood of asking for an IMF programme during a crisis, we use both a linear probability model conditioning for crises, macroeconomic conditions and availability of other sources of financial support and a propensity score matching approach.[25] We find that neighbours' negative experience of hard conditionality reduces the likelihood of agreeing on an IMF programme almost as much as own negative experience. Moreover, neighbours' experience matters most in Asian countries and after the Asian crisis.However, we also find that 'soft' or standard conditionality can be considered part of the trade-off and does not significantly alter the likelihood of asking for an IMF programme during a crisis. This applies to both own experience and observed trade partners' experience. Our findings on other determinants of agreeing for an IMF programme are in line with the literature.

These results point to the role which the design of conditionality plays, not only in shaping a macroeconomic recovery and in containing moral hazard, but also the potential role in shaping a general perception of the IMF. Moreover, they also show that perceptions can change over time and that changes in design may also change perceptions. Yet, a deeper understanding of the link between the effectiveness of conditionality and political perception would be helpful for understanding the scope and need to address stigma.

[25] Details on the estimation methodology and results to be added.

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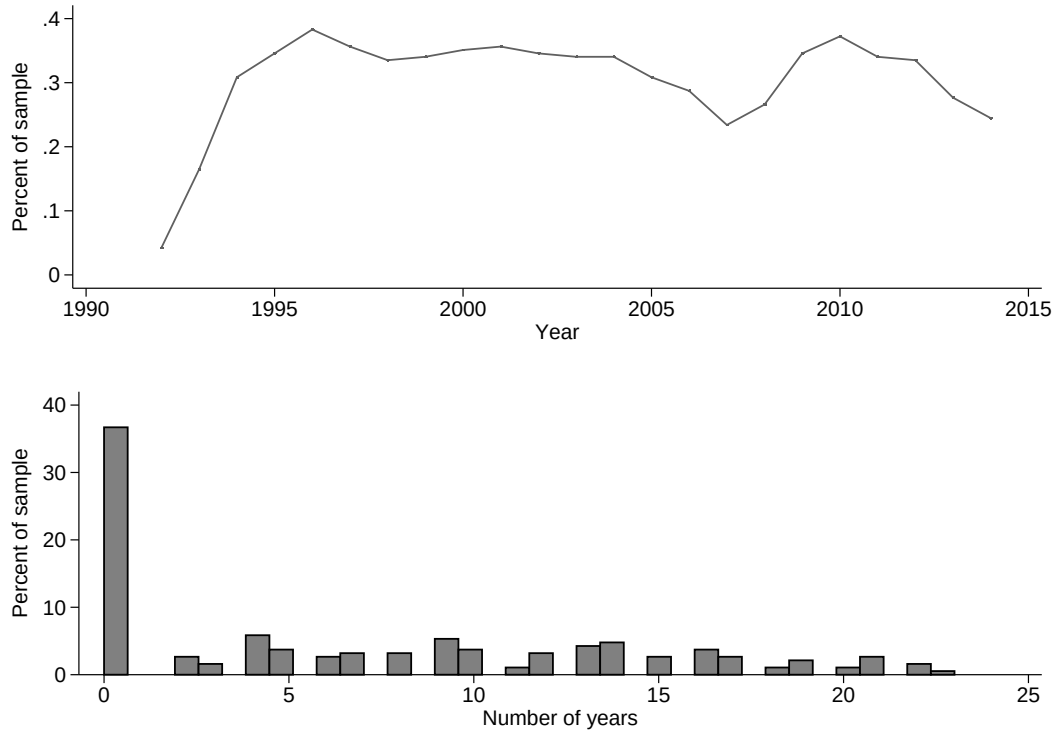
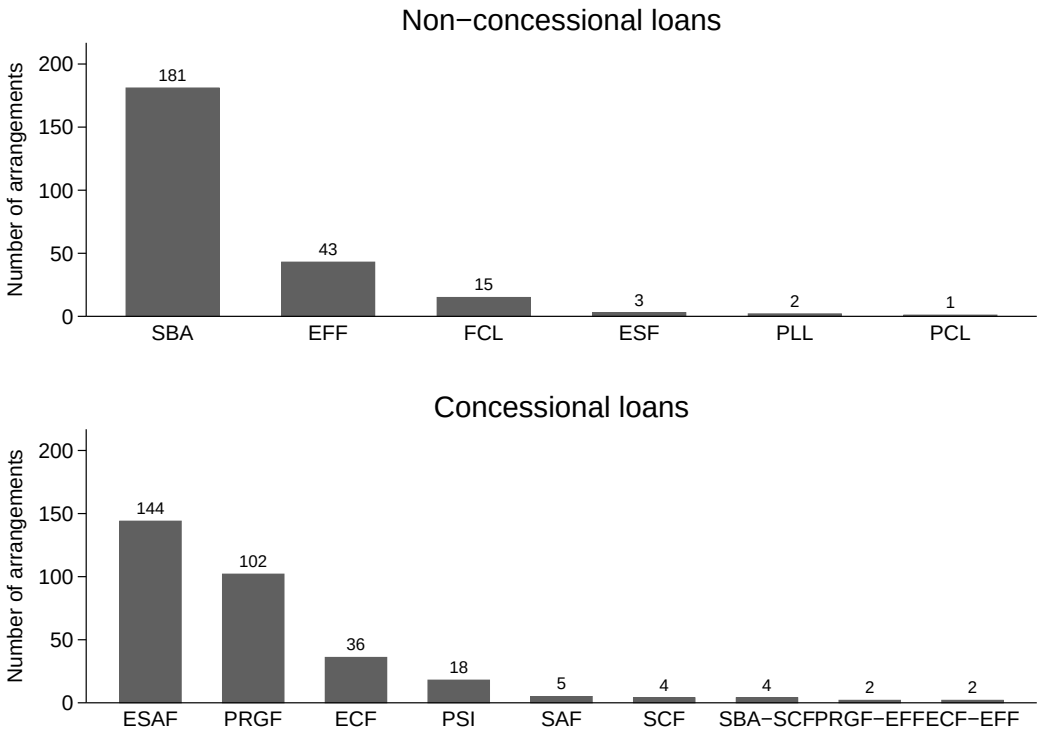
Figure 1: IMF lending: participation of sample countries by calendar year



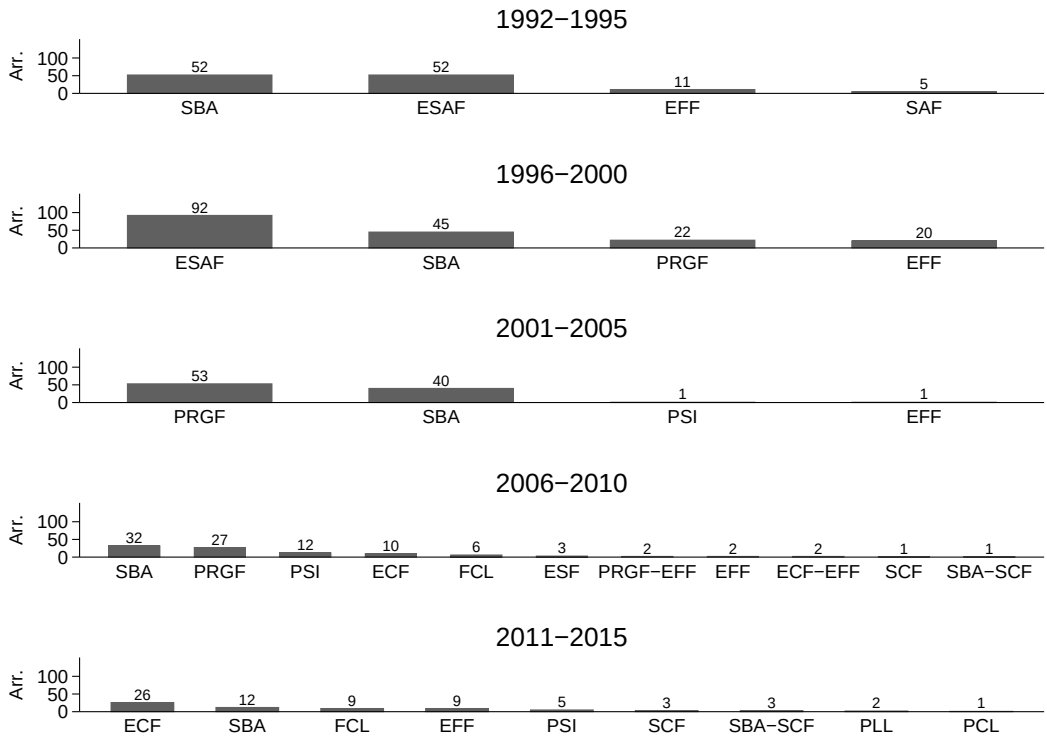
Source: IMF MONA database. The top graph depicts the share of sample countries participating in IMF arrangements over time. The bottom graph shows the distribution of countries by the number of years spent under an IMF-supported programme.

Figure 2: Total number of concessional and non-concessional sample arrangements by type



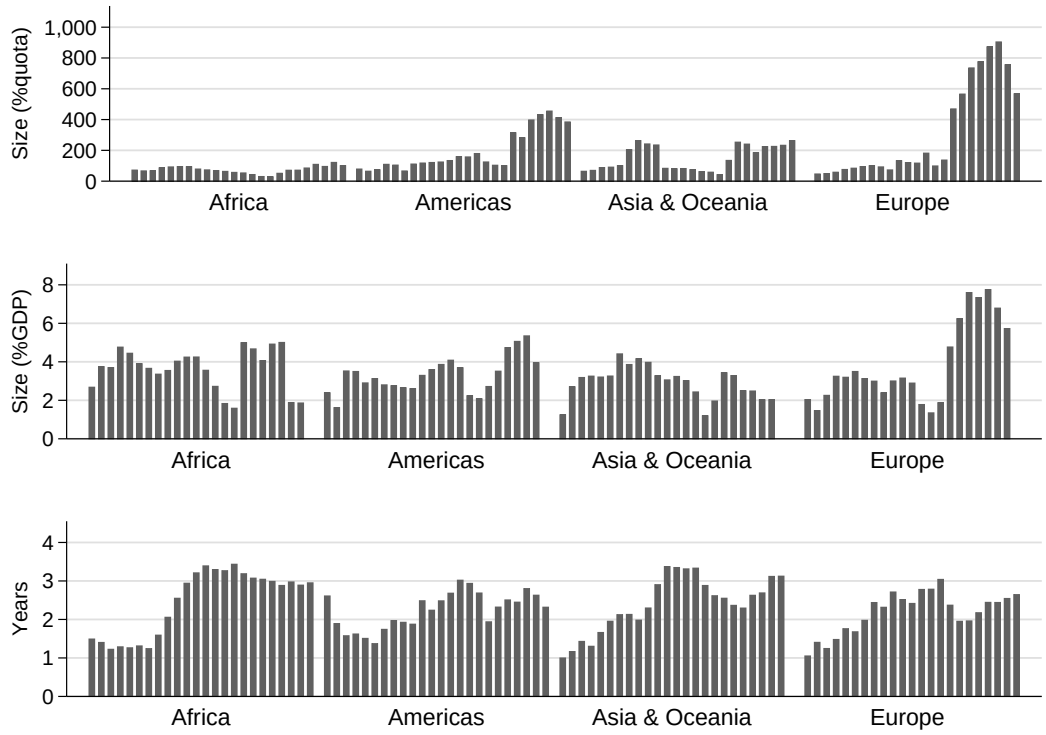
Source: IMF MONA database. Concessional loans are made available to low-income countries on concessional terms (currently carrying zero interest rates until the end of 2016), while non-concessional lending is subject to the IMF's market-related interest rate and arrangements above certain limits carry a surcharge.

Figure 3: Breakdown of sample arrangements by type and time interval



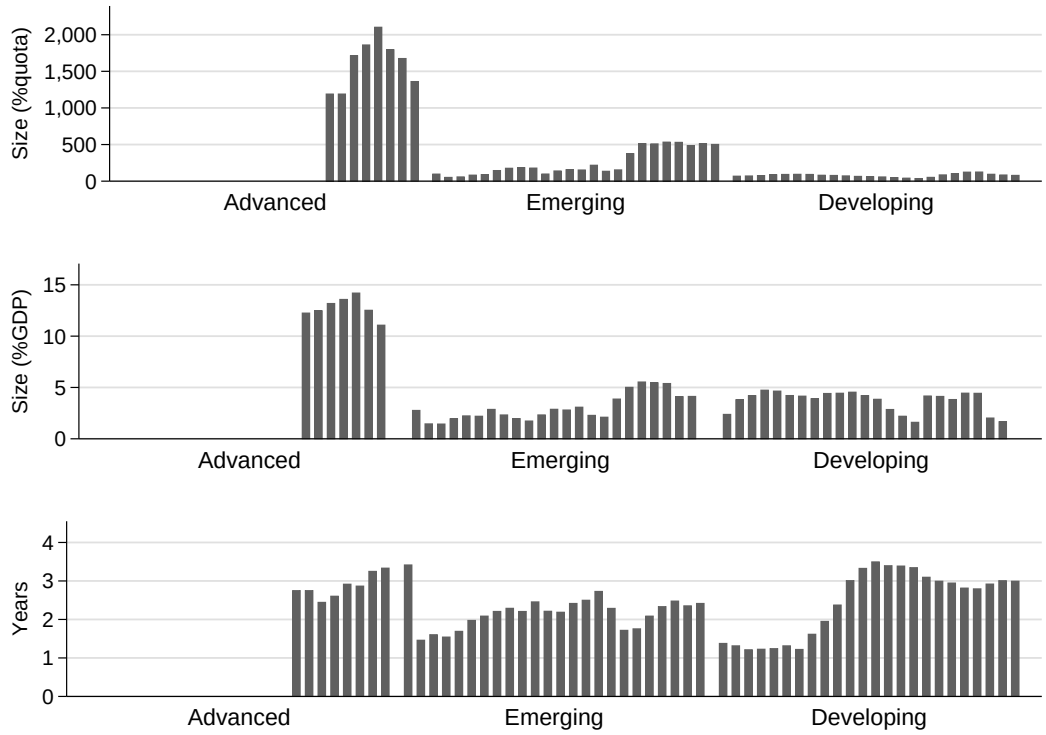
Source: IMF MONA database. Number of arrangements by type during sample five-year intervals.

Figure 4: Size and duration of sample IMF programmes by region and year



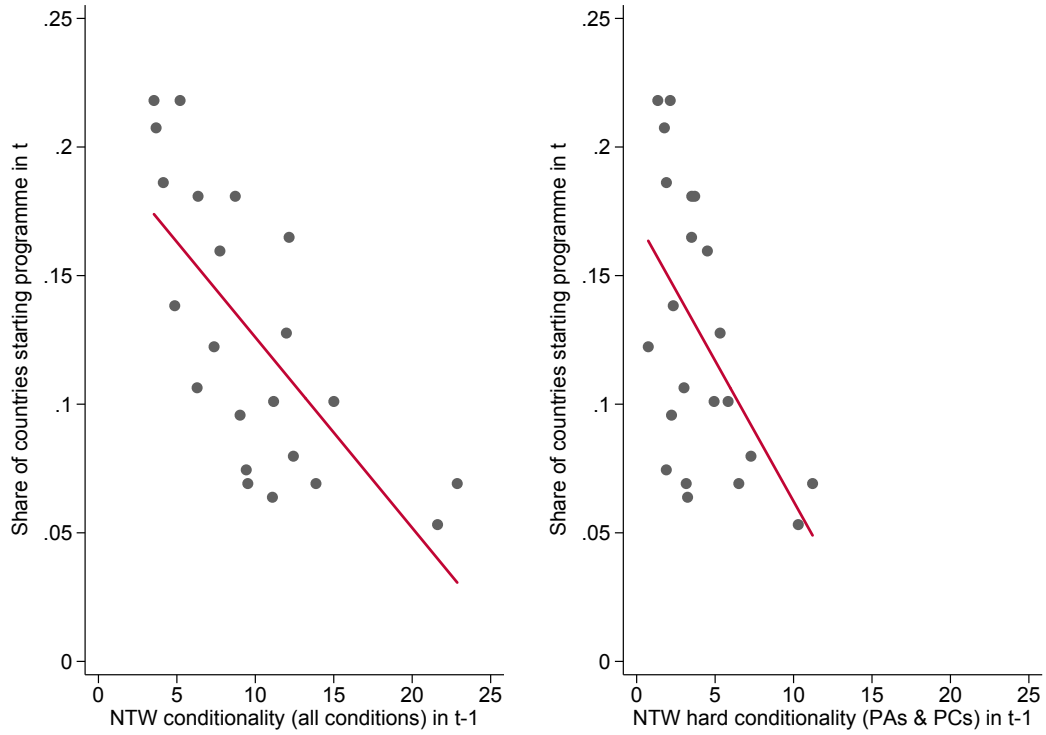
Source: IMF MONA database, own calculations. Each panel graphs the annual average size and duration of arrangements in sample countries between 1992 and 2015, along regional lines (grouped by geographic region). Year labels were excluded for aesthetic purposes and each bar corresponds to year-region average size and duration, respectively.

Figure 5: Size and duration of sample IMF programmes by wealth level and year



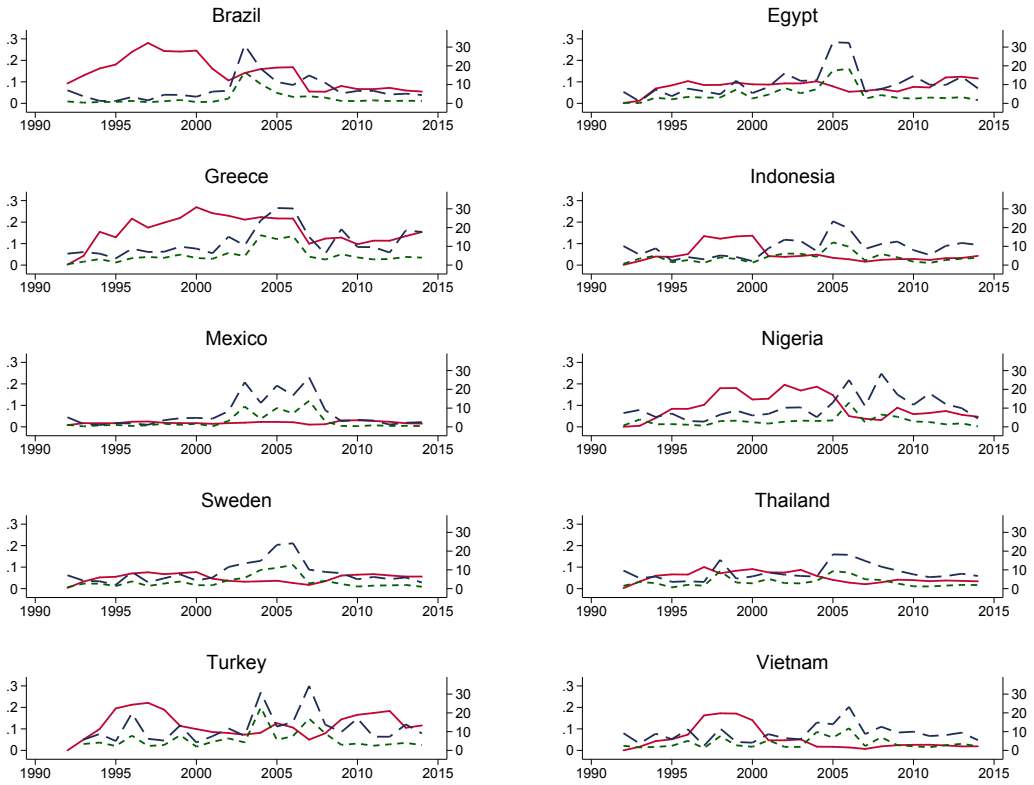
Source: IMF MONA database. Each panel graphs the annual average size and duration of arrangements in sample countries between 1992 and 2015, grouped by level of development. Year labels were excluded for aesthetic purposes and each bar corresponds to average size and duration, grouped by development classification.

Figure 6: Correlation between the share of countries starting arrangement in year t and trade-weighted neighbour conditionality in year $t-1$



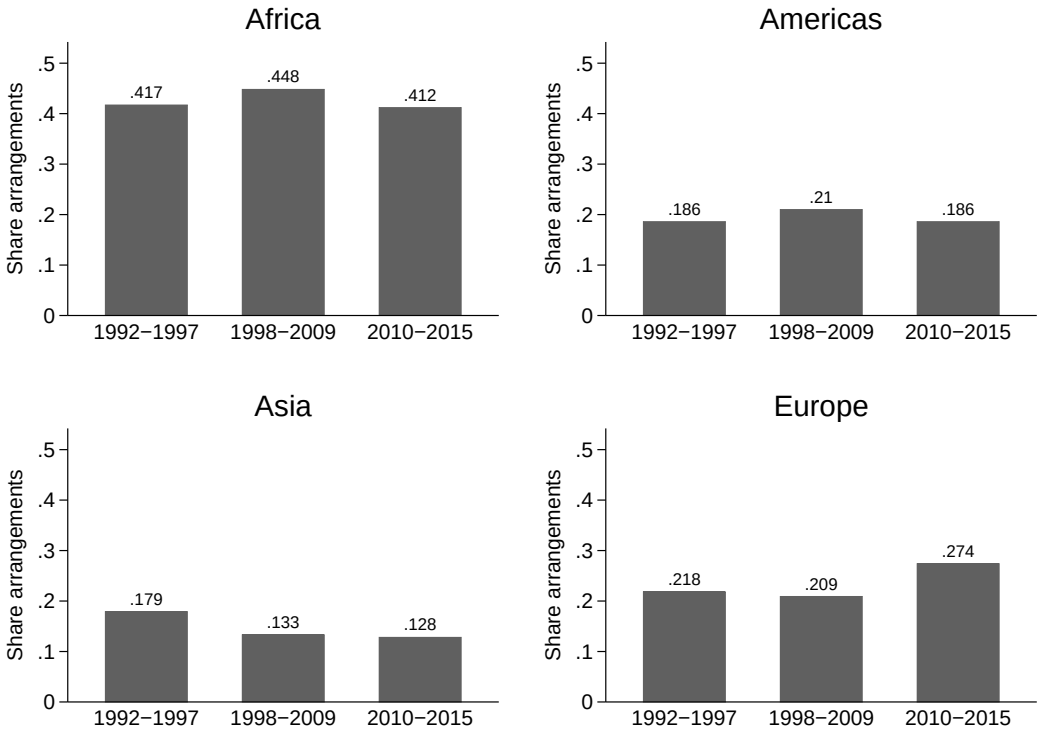
Source: IMF MONA database, own calculations. Correlation between share of the total number of countries starting arrangement in year t and neighbour trade-weighted conditionality in year $t-1$, measured as total number of conditions weighted by neighbours' trade-share: all condition types (left), hard conditions, i.e. prior actions and performance criteria (right).

Figure 7: Selected countries: Evolution over time of the trade-weighted neighbour share with IMF arrangements (lefthand scale) and neighbour trade-weighted conditionality, total number of conditions (soft and hard) and hard conditions only (righthand scale)



Source: MONA and DOTS, own calculations. The red line corresponds to the lefthand scale of each country graph. It represents the trade-weighted proportion of neighbours which have an active Fund-supported programme in each respective year (calculations equivalent to the top panel of Figure 1). The navy and green dashed lines correspond to the righthand scale which ranges from 0 to 35. The navy dashed line represents the trade-weighted total number of conditions – soft and hard – of each country's neighbours, over time. The dark green dashed line represents the trade-weighted total number of hard conditions (prior actions, structural and quantitative performance criteria) of each country's neighbours, over time.

Figure 8: Share of IMF programmes by region and time



Source: MONA, own calculations. Each bar represents the proportion of total number of IMF arrangements signed within each geographic region, by time interval.

Table 1: Countries and number of IMF arrangements, 1992 - 2015

Afghanistan	2	Ecuador	3	Lithuania	4	Serbia & Montenegro	1
Albania	7	Egypt, Arab Rep.	2	Luxembourg	0	Seychelles	3
Algeria	3	El Salvador	6	Macedonia, FYR	8	Sierra Leone	8
Angola	1	Equatorial Guinea	2	Madagascar	4	Singapore	0
Antigua & Barbuda	1	Eritrea	0	Malawi	9	Slovak Republic	1
Argentina	6	Estonia	5	Malaysia	0	Slovenia	0
Armenia	10	Ethiopia	7	Maldives	1	Solomon Islands	3
Australia	0	Fiji	0	Mali	11	Somalia	0
Austria	0	Finland	0	Malta	0	South Africa	0
Azerbaijan	6	France	0	Marshall Islands	0	South Sudan	0
Bahamas, The	0	Gabon	5	Mauritania	9	Spain	0
Bahrain	0	Gambia, The	6	Mauritius	0	Sri Lanka	3
Bangladesh	2	Georgia	9	Mexico	7	St. Kitts & Nevis	1
Barbados	0	Germany	0	Micronesia, Fed. States	0	St. Lucia	0
Belarus	2	Ghana	6	Moldova	6	St. Vincent & the Grenadines	0
Belgium	0	Greece	2	Mongolia	6	Sudan	0
Belize	0	Grenada	3	Montenegro	0	Suriname	0
Benin	8	Guatemala	3	Morocco	2	Swaziland	0
Bhutan	0	Guinea	6	Mozambique	10	Sweden	0
Bolivia	7	Guinea-Bissau	6	Myanmar	0	Switzerland	0
Bosnia & Herzegovina	4	Guyana	6	Namibia	0	Syrian Arab Republic	0
Botswana	0	Haiti	5	Nepal	3	Tajikistan	5
Brazil	3	Honduras	7	Netherlands	0	Tanzania	9
Brunei Darussalam	0	Hungary	3	New Zealand	0	Thailand	1
Bulgaria	6	Iceland	1	Nicaragua	5	Timor-Leste	0
Burkina Faso	11	India	0	Niger	8	Togo	3
Burundi	3	Indonesia	3	Nigeria	2	Tonga	0
Cambodia	3	Iran, Islamic Rep.	0	Norway	0	Trinidad & Tobago	0
Cameroon	7	Iraq	3	Oman	0	Tunisia	1
Canada	0	Ireland	1	Pakistan	11	Turkey	4
Cape Verde	4	Israel	0	Palau	0	Turkmenistan	0
Central African Rep.	5	Italy	0	Panama	3	Tuvalu	0
Chad	7	Jamaica	3	Papua New Guinea	2	Uganda	11
Chile	0	Japan	0	Paraguay	2	Ukraine	9
China	0	Jordan	5	Peru	7	United Arab Emirates	0
Colombia	8	Kazakhstan	4	Philippines	2	United Kingdom	0
Comoros	1	Kenya	6	Poland	7	United States	0
Congo, Dem. Rep.	2	Kiribati	0	Portugal	1	Uruguay	7
Congo, Rep.	4	Korea, Rep.	1	Qatar	0	Uzbekistan	1
Costa Rica	3	Kosovo	3	Romania	8	Vanuatu	0
Cote d'Ivoire	7	Kuwait	0	Russian Federation	3	Venezuela, RB	1
Croatia	5	Kyrgyz Republic	11	Rwanda	7	Vietnam	4
Cyprus	1	Lao PDR	4	Samoa	0	Yemen, Rep.	7
Czech Rep.	1	Latvia	7	San Marino	0	Yugoslavia	1
Denmark	0	Lebanon	0	Sao Tome & Principe	5	Zambia	7
Djibouti	3	Lesotho	5	Saudi Arabia	0	Zimbabwe	5
Dominica	2	Liberia	2	Senegal	11		
Dominican Rep.	4	Libya	0	Serbia	3	**Total**	**563**

Table 2: Brief description of arrangement types

Arr. Type	Timeline	Concess.	Access (% quota)	Length	Repayment	Precautionary
SAF	1992-1995	Yes	Preceded ESAF, similar			
ESAF[1]	1992-1999	Yes	140-185	3 years	5 1/2 - 10 years	
EFF	1992-2015	No	435 (145/year)	3 years	4 1/2 – 10 years	No
SBA	1993-2015	No	435 (140/year)	12-24 months	3 1/4-5 years	Both
PRGF	1999-2009	Yes	280-370	3 years	5 1/2 – 10 years	No
PSI[2]	2005-2015	Yes	Fund support			Both
ESF	2008-2009	No	75	12-24 months	5 1/2 – 10 years	No
FCL[3]	2009-2015	No	No limit	1-2 years	3 1/4-5 years	Yes
ECF	2010-2015	Yes	225 (75/year)	3-4 years (max 5)	5 1/2 – 10 years	No
SCF	2010-2015	Yes	225 (75/year)	12-24 months	4-8 years	Both
PCL[5]	2011	No	1000/500	12-24 months	3 1/4-5 years	Yes
PLL[4]	2012, 2014	No	500 (250/year, 125/6-month)	6-24 months		Yes

Source: IMF website and IMF MONA database. Timeline appears as reported in the MONA database. Limits in % of quota refer to limits before the 14th Review of Quotas coming into effect in end 2015, which not only triggered a change in quotas, but also in access limits.

1. ESAF was the successor of SAF and was in turn followed by the PGRF and the ECF (see timeline).
2. Fund advice and support without an arrangement.
3. No defined cap, need assessed case by case; review for qualification after 1st year.
4. Level- and time-based surcharges are designed to discourage large and prolonged use of IMF resources.
5. Access limit: 1000 percent of quota after 1 year, 500 at approval.

Table 3: Sample arrangements by type, 1992 - 2015

SBA	Stand-By Arrangement	181
ESAF	Enhanced Structural Adjustment Facility	145
PRGF	Poverty Reduction and Growth Facility	102
EFF	Extended Fund Facility	43
ECF	Extended Credit Facility	36
PSI	Policy Support Instrument	18
FCL	Flexible Credit Line	15
SAF	Structural Adjustment Facility	5
SBA-SCF	Stand-By Arrangement – Standby Credit Facility	4
SCF	Standby Credit Facility	4
ESF	Exogenous Shocks Facility (High Access Component)	3
ECF-EFF	Extended Credit Facility – Extended Fund Facility	2
PLL	Precautionary and Liquidity Line	2
PRGF-EFF	Poverty Reduction and Growth Facility – Extended Fund Facility	2
PCL	Precautionary Credit Line	1
Total		**563**

Source: IMF MONA database.

Table 4: Conditionality in the IMF MONA database: types of conditions, economic areas covered and completion status

Conditions	
IT	Indicative Target
PA	Prior Action
QPC	Quantitative Performance Criteria
SAC	Structural Assessment Criteria
SB	Structural Benchmark
SPC	Structural Performance Criteria
Economic areas	
CB	Central Bank
CIVIL	Civil service and public employment reforms, and wages
FIN	Financial sector
FX	Exchange systems and restrictions (current and capital)
GOV	General government
INT	International trade policy, excluding customs reforms
LAB	Labor markets, excluding public sector employment
OTHER	Other structural measures
PUB	Public enterprise reform and pricing (non financial sector)
SOC	Pension and other social sector reforms
STAT	Economic statistics (excluding fiscal and CB transparency etc.)
Implementation status	
CAN	Cancelled
DL	Delayed
M	Met
MD	Met with delay
MOD	Modified
NM	Not met
OUT	Outstanding
PM	Partially met
W	Waived

Table 5: Summary statistics for variables used in baseline estimation

VARIABLES	Obs.	Mean	Std. Dev.	Min	Max
Arrangement start	3041	.14	.34	0	1
RGDP growth, per capita	3041	2.4	3.29	-17.31	47.37
Reserves	2996	4.42	4.53	0	79.24
Current account	3040	-3.26	10.42	-124.56	51.11
Own IMF history	3041	.44	.5	0	1
NTW RGDP growth, per capita	3037	2.15	2.25	-11.73	10.38
NTW reserves	3036	4.26	1.51	.07	14.72
NTW current account	3037	-3.39	4.57	-30.9	22.49
Neighbour share with arr.	3041	27.03	8.42	0	54.55
Own past conditionality	3041	4.48	7.11	0	57
Own past hard conditionality (HC)	3041	1.74	3.46	0	34
NTW conditionality	3037	10.69	8.18	0	63.28
NTW hard conditionality (HC)	3037	4.5	4.69	0	45.74

The summary statistics refer to the post-estimation samples in column (3) and (5) of Table 6. See Appendix Table 1 for a detailed definition of all sample variables.

Table 6: Baseline estimation results

VARIABLES	(1)	(2)	(3)	(4)	(5)
PC RGDP growth (5-yr MA)	-0.0113***	-0.0115***	-0.0104***	-0.0114***	-0.0102***
	(0.0026)	(0.0028)	(0.0029)	(0.0027)	(0.0027)
Reserves_{t-1}	-0.0084*	-0.0083**	-0.0087**	-0.0083**	-0.0087**
	(0.0043)	(0.0040)	(0.0040)	(0.0042)	(0.0042)
$\text{Current account}_{t-1}$	-0.0014	-0.0015	-0.0015	-0.0015	-0.0014
	(0.0009)	(0.0009)	(0.0010)	(0.0009)	(0.0009)
Own IMF history	-0.0275	0.0122	0.0105	-0.0027	-0.0048
	(0.0179)	(0.0221)	(0.0222)	(0.0214)	(0.0215)
Own past cond.		-0.0056***	-0.0057***		
		(0.0015)	(0.0015)		
Own past HC				-0.0082***	-0.0084***
				(0.0031)	(0.0030)
NTW PC RGDP growth (5-yr MA)			-0.0082**		-0.0085**
			(0.0040)		(0.0040)
$\text{NTW reserves}_{t-1}$			0.0016		0.0012
			(0.0058)		(0.0058)
$\text{NTW current account}_{t-1}$			-0.0020		-0.0021
			(0.0019)		(0.0019)
NTW past cond.		0.0026*	0.0019		
		(0.0016)	(0.0015)		
NTW past HC				0.0015	0.0004
				(0.0027)	(0.0026)
Constant	0.2658***	0.2563***	0.2620***	0.2627***	0.2693***
	(0.0412)	(0.0420)	(0.0479)	(0.0418)	(0.0474)
Observations	3,041	3,041	3,041	3,041	3,041
Number of countries	170	170	170	170	170
Adjusted R-squared	0.0466	0.0529	0.0542	0.0500	0.0516
F-test	5.1563	5.1764	4.9490	4.8559	4.6292
Prob>F	0.0000	0.0000	0.0000	0.0000	0.0000

Robust standard errors in parentheses

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

The dependent variable is binary and equals one if country i starts an IMF programme in year t. All specifications are estimated using a least-squares panel-data regression model. The estimation controls for country fixed-effects and includes year dummies. The reported F-statistic and its associated p-value reflect the joint statistical significance of the included estimated coefficients.

Table 7: Estimation results: additional macro controls

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Own past HC	-0.0063*	-0.0063*	-0.0064*	-0.0064*	-0.0063*	-0.0064*	-0.0063*
	(0.0035)	(0.0035)	(0.0035)	(0.0035)	(0.0034)	(0.0034)	(0.0035)
NTW past HC	-0.0023	-0.0023	-0.0023	-0.0024	-0.0023	-0.0022	-0.0032
	(0.0029)	(0.0029)	(0.0029)	(0.0029)	(0.0029)	(0.0028)	(0.0028)
Gross fixed K formation$_{t-1}$		-0.0001					
		(0.0020)					
REER overvaluation$_{t-1}$			-0.0002				
			(0.0007)				
REER$_{t-1}$				-0.0005			
				(0.0005)			
Central government FB$_{t-1}$					-0.0026*		
					(0.0015)		
Trade openness$_{t-1}$						-0.0009**	
						(0.0004)	
GFSN access$_{t-1}$							0.0001***
							(0.0000)
Constant	0.2823***	0.2841***	0.2821***	0.3340***	0.2693***	0.3497***	0.2686***
	(0.0503)	(0.0640)	(0.0504)	(0.0715)	(0.0494)	(0.0616)	(0.0505)
Observations	2,540	2,540	2,540	2,540	2,540	2,540	2,540
Number of reportercode	148	148	148	148	148	148	148
Adjusted R-squared	0.0480	0.0476	0.0476	0.0483	0.0488	0.0492	0.0537
F-test	3.1564	3.0549	3.1285	3.9947	3.1571	3.1093	16.6448
Prob >F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Robust standard errors in parentheses

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

The dependent variable is binary and equals one if country i starts an IMF programme in year t. All specifications are estimated using a least-squares panel-data regression model. The estimation controls for country fixed-effects and includes year dummies. The reported F-statistic and its associated p-value reflect the joint statistical significance of the included estimated coefficients. Each of the columns in this table builds on the specification in column (5) of Table 6, controlling for countries' key macroeconomic variables (real per capita GDP growth, international reserves in months of imports, current account and own history with the IMF), as well as trade partners' key macro variables (neighbours' trade-weighted per capital real GDP growth, international reserves and current account).

Table 8: Estimation results: additional institutional and political economy controls

VARIABLES	(1)	(2)	(3)	(4)	(5)
Own past HC,	-0.0074***	-0.0074***	-0.0075***	-0.0080***	-0.0074***
	(0.0025)	(0.0025)	(0.0025)	(0.0026)	(0.0025)
NTW past HC	0.0009	0.0009	0.0009	0.0009	0.0004
	(0.0029)	(0.0030)	(0.0029)	(0.0029)	(0.0029)
UNGA vote $_{t-1}$		-0.0002			
		(0.0009)			
Rule of Law index$_{t-1}$			-0.0221		
			(0.0355)		
Log (IMF quota)				0.2040*	
				(0.1056)	
Politcal Stability$_{t-1}$					-0.0483*
					(0.0248)
Constant	0.1760***	0.1841***	0.1778***	-0.8911	0.1930***
	(0.0320)	(0.0507)	(0.0325)	(0.5501)	(0.0343)
Observations	1,982	1,982	1,982	1,982	1,982
Number of reportercode	166	166	166	166	166
Adjusted R-squared	0.0181	0.0176	0.0178	0.0195	0.0197

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The dependent variable is binary and equals one if country i starts an IMF programme in year t. All specifications are estimated using a least-squares panel-data regression model. The estimation controls for country fixed-effects and includes year dummies. The reported F-statistic and its associated p-value reflect the joint statistical significance of the included estimated coefficients. Each of the columns in this table builds on the specification in column (5) of Table 6, controlling for countries' key macroeconomic variables (real per capita GDP growth, international reserves in months of imports, current account and own history with the IMF), as well as trade partners' key macro variables (neighbours' trade-weighted per capital real GDP growth, international reserves and current account).

Table 9: Estimation results: additional neighbour trade-weighted macro controls

VARIABLES	(1)	(2)	(3)	(4)	(5)
Own past HC	-0.0084***	-0.0084***	-0.0084***	-0.0083***	-0.0084***
	(0.0030)	(0.0030)	(0.0030)	(0.0030)	(0.0030)
NTW past HC	0.0004	0.0005	0.0004	0.0004	0.0001
	(0.0027)	(0.0027)	(0.0027)	(0.0026)	(0.0027)
NTW trade openness$_{t-1}$		0.0001			
		(0.0004)			
NTW TT growth$_{t-1}$			0.0005		
			(0.0009)		
NTW export growth$_{t-1}$				-0.0010	
				(0.0007)	
NTW IMF history					0.0239
					(0.0354)
Constant	0.2706***	0.2619***	0.2718***	0.2753***	0.2679***
	(0.0478)	(0.0517)	(0.0480)	(0.0481)	(0.0479)
Observations	3,040	3,040	3,040	3,040	3,040
Number of reportercode	170	170	170	170	170
Adjusted R-squared	0.0516	0.0513	0.0514	0.0519	0.0515
F-test	4.6286	4.4712	4.4580	4.5304	4.4747
Prob >F	0.0000	0.0000	0.0000	0.0000	0.0000

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The dependent variable is binary and equals one if country i starts an IMF programme in year t. All specifications are estimated using a least-squares panel-data regression model. The estimation controls for country fixed-effects and includes year dummies. The reported F-statistic and its associated p-value reflect the joint statistical significance of the included estimated coefficients. Each of the columns in this table builds on the specification in column (5) of Table 6, controlling for countries' key macroeconomic variables (real per capita GDP growth, international reserves in months of imports, current account and own history with the IMF), as well as trade partners' key macro variables (neighbours' trade-weighted per capital real GDP growth, international reserves and current account).

Table 10: Baseline estimation results conditioning on crises' occurence

VARIABLES	(1) Full sample	(2) Stop	(3) Flight	(4) Banking	(5) Currency	(6) CA deficit
Own past HC	-0.0084***	-0.0128	-0.0271	-0.1838***	-0.0779***	-0.0097***
	(0.0030)	(0.0149)	(0.0282)	(0.0411)	(0.0227)	(0.0052)
NTW past HC	0.0004	-0.0235	-0.0042	-0.0249	-0.0547*	0.0014
	(0.0026)	(0.0231)	(0.0163)	(0.0351)	(0.0323)	(0.0046)
Constant	0.2693***	0.5661*	0.3236	1.5467*	1.3006***	0.2463***
	(0.0474)	(0.2891)	(0.2235)	(0.8437)	(0.3071)	(0.1005)
Observations	3,041	269	262	131	128	1,088
Number of reportercode	170	59	57	66	59	167
Adjusted R-squared	0.0516	0.0691	0.0821	0.4362	0.1770	0.0411

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The dependent variable is binary and equals one if country i starts an IMF programme in year t. All specifications are estimated using a least-squares panel-data regression model. The estimation controls for country fixed-effects and includes year dummies. Each of the columns in this table builds on the specification in column (5) of Table 6, controlling for countries' key macroeconomic variables (real per capita GDP growth, international reserves in months of imports, current account and own history with the IMF), as well as trade partners' key macro variables (neighbours' trade-weighted per capital real GDP growth, international reserves and current account). Each of the estimations conditions on episodes of given crises in time t or $t-1$, where Stop stands for the event of a sharp decrease in gross private inflows; Flight represents the event of a sharp decrease in gross private outflows; Banking and Currency are occurences of systemic banking crises and currency crises, as defined by Laeven & Valencia (2012). The current account deficit dummy takes the value one if the CA in year t is one standard deviation below the 5-year moving average value of the CA.

Table 11: Baseline estimation results by concessionality of arrangements

VARIABLES	(1) Full sample	(2) Non-concessional	(3) Concessional
Own past HC	-0.0084***	-0.0372***	-0.0257***
	(0.0030)	(0.0116)	(0.0078)
NTW past HC	0.0004	-0.0348**	0.0062
	(0.0026)	(0.0152)	(0.0052)
Constant	0.2693***	0.9351***	0.7789***
	(0.0474)	(0.1786)	(0.1465)
Observations	3,041	438	640
Number of reportercode	170	75	60
Adjusted R-squared	0.0516	0.1162	0.1766
F-test	4.6292	7.1564	23.0385
Prob >F	0.0000	0.0000	0.0000

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The dependent variable is binary and equals one if country i starts an IMF programme in year t. All specifications are estimated using a least-squares panel-data regression model. The estimation controls for country fixed-effects and includes year dummies. The reported F-statistic and its associated p-value reflect the joint statistical significance of the included estimated coefficients. Each of the columns in this table builds on the specification in column (5) of Table 6, controlling for countries' key macroeconomic variables (real per capita GDP growth, international reserves in months of imports, current account and own history with the IMF), as well as trade partners' key macro variables (neighbours' trade-weighted per capital real GDP growth, international reserves and current account). See Table 2 for the various types of concessional and non-concessional arrangements.

Table 12: Baseline estimation results by geographic region

VARIABLES	(1) Full sample	(2) Africa	(3) Americas	(4) Asia & Oceania	(5) Europe
Own past HC	-0.0084***	-0.0131**	-0.0032	-0.0084**	-0.0165***
	(0.0030)	(0.0061)	(0.0060)	(0.0031)	(0.0048)
NTW past HC	0.0004	0.0058	0.0003	0.0034	-0.0131*
	(0.0026)	(0.0064)	(0.0061)	(0.0049)	(0.0072)
Constant	0.2693***	0.3406***	0.1759**	0.3816***	0.2599**
	(0.0474)	(0.0969)	(0.0691)	(0.1058)	(0.1004)
Observations	3,041	831	670	744	796
Number of reportercode	170	50	34	43	43
Adjusted R-squared	0.0516	0.0442	0.0379	0.0581	0.0952
F-test	4.6292	2.9957	90.6113	33.6231	22.8850
Prob >F	0.0000	0.0003	0.0000	0.0000	0.0000

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The dependent variable is binary and equals one if country i starts an IMF programme in year t. All specifications are estimated using a least-squares panel-data regression model. The estimation controls for country fixed-effects and includes year dummies. The reported F-statistic and its associated p-value reflect the joint statistical significance of the included estimated coefficients. Each of the columns in this table builds on the specification in column (5) of Table 6, controlling for countries' key macroeconomic variables (real per capita GDP growth, international reserves in months of imports, current account and own history with the IMF), as well as trade partners' key macro variables (neighbours' trade-weighted per capital real GDP growth, international reserves and current account).

Table 13: Baseline estimation results by level of development

VARIABLES	(1) Full sample	(2) ADV	(3) EME & DEV
Own past HC	-0.0084***	0.0023	-0.0083***
	(0.0030)	(0.0120)	(0.0032)
NTW past HC	0.0004	-0.0024	0.0003
	(0.0026)	(0.0084)	(0.0028)
Constant	0.2693***	0.1385**	0.3207***
	(0.0474)	(0.0594)	(0.0551)
Observations	3,041	630	2,411
Number of reportercode	170	33	137
Adjusted R-squared	0.0516	0.0944	0.0526
F-test	4.6292	557.6910	4.5982
Prob >F	0.0000	0.0000	0.0000

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The dependent variable is binary and equals one if country i starts an IMF programme in year t. All specifications are estimated using a least-squares panel-data regression model. The estimation controls for country fixed-effects and includes year dummies. The reported F-statistic and its associated p-value reflect the joint statistical significance of the included estimated coefficients. Each of the columns in this table builds on the specification in column (5) of Table 6, controlling for countries' key macroeconomic variables (real per capita GDP growth, international reserves in months of imports, current account and own history with the IMF), as well as trade partners' key macro variables (neighbours' trade-weighted per capital real GDP growth, international reserves and current account). The country classification follows the IMF's World Economic Outlook (WEO) Database division of countries into two major groups: advanced (ADV) and emerging and developing economies (EME & DEV). For details on the country classification, see the WEO Database.

Table 14: Baseline estimation results by region: Emerging Market and Developing Economies

VARIABLES	(1) LAC	(2) CIS	(3) SSA	(4) MENAP	(5) ASEAN-5
Own past HC	-0.0031	-0.0241**	-0.0122*	-0.0344***	-0.0270
	(0.0060)	(0.0101)	(0.0061)	(0.0065)	(0.0138)
NTW past HC	0.0002	-0.0170	0.0081	-0.0021	-0.0833**
	(0.0062)	(0.0153)	(0.0079)	(0.0053)	(0.0294)
Constant	0.1929**	0.8280	0.3997***	0.3182**	0.1822
	(0.0712)	(0.6364)	(0.1143)	(0.1209)	(0.5026)
Observations	628	189	694	307	101
Number of reportercode	32	10	42	20	5
Adjusted R-squared	0.0382	0.2129	0.0559	0.0518	0.2302

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The dependent variable is binary and equals one if country i starts an IMF programme in year t. All specifications are estimated using a least-squares panel-data regression model. The estimation controls for country fixed-effects and includes year dummies. Each of the columns in this table builds on the specification in column (5) of Table 6, controlling for countries' key macroeconomic variables (real per capita GDP growth, international reserves in months of imports, current account and own history with the IMF), as well as trade partners' key macro variables (neighbours' trade-weighted per capital real GDP growth, international reserves and current account). The country classification follows the IMF's World Economic Outlook (WEO) Database division of countries into groups. The acronyms are defined as follows: LAC (Latin America and the Carribean), CIS (Commonwealth of Independent States), SSA (Sub-Saharan Africa), MENAP (Middle East, North Africa, Afghanistan, and Pakistan) and ASEAN-5 (Association of Southeast Asian Nations). For details on the country classification, see the WEO Database.

Table 15: Baseline estimation results by region: Advanced Economies

VARIABLES	(1) EA	(2) EU	(3) Other
Own past HC	0.0023	-0.0125*	-0.0043
	(0.0138)	(0.0066)	(0.0123)
NTW past HC	0.0066	0.0056	-0.0187
	(0.0116)	(0.0091)	(0.0130)
Constant	0.1447*	0.2392***	0.0728
	(0.0775)	(0.0750)	(0.1145)
Observations	342	507	207
Number of reportercode	19	27	10
Adjusted R-squared	0.1624	0.1109	0.0688

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The dependent variable is binary and equals one if country i starts an IMF programme in year t. All specifications are estimated using a least-squares panel-data regression model. The estimation controls for country fixed-effects and includes year dummies. Each of the columns in this table builds on the specification in column (5) of Table 6, controlling for countries' key macroeconomic variables (real per capita GDP growth, international reserves in months of imports, current account and own history with the IMF), as well as trade partners' key macro variables (neighbours' trade-weighted per capital real GDP growth, international reserves and current account). The country classification follows the IMF's World Economic Outlook (WEO) Database division of countries into groups. The acronyms are defined as follows: EA (Euro Area), EU (European Union), Other (Advanced economies, excluding G7 and Euro Area). For details on the country classification, see the WEO Database.

Appendix

Detailed definitions of sample variables

The dependent variable – IMF arrangement start – is binary and equals one if country i starts an IMF programme in year t.

Countries' real per capita GDP growth is calculated as a 5-year moving average. International reserves are expressed in months of imports and current account is measured as % of GDP. Countries' own IMF history is a dummy taking the value one if the country had signed at least one agreement with the IMF in the previous 5 years. And countries' own past conditionality averages the total number of conditions (or hard conditions, HCs) associated to arrangements that the country had potentially signed in the previous 5 years, calculated as a moving average.

NTW stands for neighbour trade-weighted set of controls. Neighbours' conditionality (NTW cond.) is the trade-weighted number of total conditions associated with neighbours' IMF arrangements. NTW HC (neighbour trade-weighted hard conditionality) denotes the trade-weighted total number of hard conditions (prior actions and performance criteria) associated with neighbours' IMF programmes.

The variables pertaining to countries' neighbours are trade-weighted averages and are measured conditional on neighbours' participation in an IMF programme in a specific year. Neighbours' macroeconomic variables mirror and are measured in the same manner as the country specific macro variables. Neighbours' share with an IMF arrangement measures the trade-weighted average of a country's neighbours in an active IMF programme.