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Irina Andone  
Beatrice Scheubel

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# Memorable Encounters? Own and Neighbours' Experience with IMF Conditionality and IMF Stigma

## 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 particularly from policy circles. In this paper we investigate how countries' past experience with the IMF affects their likelihood of entering an IMF arrangement again. To also allow for such learning for countries which never had an IMF programme, we include neighbours' past IMF conditionality. Our results indicate strong learning from own experience, but hardly any learning from neighbours, except for ASEAN countries. We conjecture that the stigma associated with IMF conditionality may exist for individual country cases, but that a more general 'IMF stigma' cannot be related to observing how the IMF treats peers.

JEL-Codes: F330, F530, F550, H870.

Keywords: financial arrangements, reserves, IMF MONA, crisis resolution.

*Irina Andone\**  
*Department of Economics*  
*Uppsala University / Sweden*  
*irina.andone@nek.uu.se*

*Beatrice Scheubel\*\**  
*European Central Bank*  
*Frankfurt am Main / Germany*  
*beatrice.scheubel@ecb.europa.eu*

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# 1 Introduction

*Stigma: a mark of disgrace associated with a particular circumstance, quality or person.*

Oxford Dictionary

*Stigma: a set of negative and often unfair beliefs that a society or group of people have about something.*

Merriam Webster

The common understanding of ‘IMF stigma’ relates to a mark of disgrace on the IMF, a mark of disgrace on country’s government and a set of negative beliefs about a country’s economic situation when it asks for support from the IMF. First, stigma has been associated with the IMF itself. As the IMF lends with conditions attached to its loans, the IMF is understood as a comparatively less desirable source of crisis funding from the borrowing country’s perspective. Second, IMF stigma has been associated with the political impact on the incumbent government or the ‘loss of face’ when admitting an external advisor to shape economic policies. Third, IMF stigma has been associated with the fact that an agreement on an IMF programme may reveal previously unknown economic information about a country and thereby trigger capital outflows. According to this understanding of stigma, an IMF programme is stigmatising the country and not the IMF.

The notion of IMF ‘stigma’ with all its connotations features frequently in the policy debate about the role of the IMF in crisis prevention and resolution. 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. In this context, 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).

IMF stigma is important for policy makers because it can have important consequences for global financial stability. 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 spillovers and a 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).<sup>1</sup> Third, the country may choose to 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 the 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). 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 structural conditionality (Dreher 2009, Conway 2005). It is therefore possible that a country's experience with the IMF shapes its future interaction with it (Bird and Mandilaras 2011). Bird and Mandilaras show that IMF programmes have been associated with subsequent reserve accumulation in Latin America, pointing to the presence of IMF stigma. However, as Bird and Mandilaras do not consider the channel through which such IMF stigma may manifest itself, the scope of conditionality and its impact on IMF stigma deserves some closer attention.

In this paper, we contribute to advancing the academic debate by looking at one specific aspect of stigma: the mark of disgrace on the IMF triggered by conditionality. We investigate how previous direct and indirect exposure to IMF conditionality may affect countries' willingness to enter IMF programmes. More specifically, 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). We ask: does particularly hard conditionality lower the likelihood of a country to enter an arrangement with the IMF again?

Since not all countries have a history with the IMF, we also look at neighbouring

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<sup>1</sup>"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)

countries' experience with IMF programmes, investigating whether countries learn from peers' experience. As we use two notions of neighbours, geographical neighbours and trade partners, operating under the assumption that trade exhibits regional clustering and incorporates also cultural, linguistic and geographical links, we use the terms 'neighbours' and 'trade partners' interchangeably. 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 affect the rate at which countries are willing to enter IMF financial assistance programmes.

Given the two-sided nature of IMF arrangements and the researcher's inability to observe the negotiation 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.<sup>2</sup> 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 (both because they did not need a programme or because of stigma) and also countries which negotiated but failed to reach agreements. These considerations then impose limits on our interpretation of the results, which we will address in the discussion of our results.

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 and to continue. 'Soft' conditions we understand to be either indicative targets or conditions which are essential to programme success, but not for disbursement or continuation. We detail this distinction further in section 3.

In addition, we conduct a similar exercise for countries' trade partners and calculate trade-weighted 'hard' and 'soft' conditionality of the trade partners, assuming that

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<sup>2</sup>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 central bank 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.

observing many ‘hard’ conditions among a country’s trading partners would change its perception of IMF financial support. We also compute this for regional neighbours, i.e. conditionality weighted by inverse distance and inverse squared-distance. Both approaches are motivated by the assumption that countries trade primarily with their neighbours and neighbouring countries are likely to be similar in many respects, 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 crisis indicators, we 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 (an increase of the total number of conditions by 7.11) is related to a reduction in the country’s probability of entering a new IMF arrangement by nearly a third (i.e. a 4 percentage point reduction in likelihood, from the 14% average probability of starting an arrangement, to 10%), *ceteris paribus*. Countries’ previous exposure to hard conditionality is similarly associated to a decrease in probability of signing an agreement with the IMF by circa a fifth (from 14% to 11.1%), a sizable effect. These results are strongly robust to various specifications.

The association between the partners’ 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 trade partners’ experience with IMF conditionality influences countries’ likelihood of entering Fund-supported programmes. At the same time, the relation is strongly significant and negative in certain sub-samples. For instance, when conditioning on the occurrence of a currency crisis, own past exposure to hard conditionality and trade partners’ previous exposure to hard conditionality have almost identical effects on countries’ likelihoods of entering new arrangements. More concretely, an increase in trade partners’ number of hard conditions by one standard deviation (an increase by 4.7 hard conditions) is correlated to a decrease in the country’s probability to enter a new programme amounting to three quarters of a standard deviation, while the equivalent own country effect is a decrease by circa 80% of one standard deviation, albeit the own country effect remains strongly statistically significant, while the trade partners’ hard conditionality coefficient is significant at the 90% confidence level. Trade partners’ 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 IMF stigma related to conditionality

affects the likelihood of agreeing on an IMF programme. 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’ as well as to the literature on recidivism of IMF programmes, or countries’ ‘learning’ from IMF programmes.

In Section 2 we review the literature dealing with stigma and IMF conditionality and 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

*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?*

Conditionality in IMF programmes has not from the beginning been associated with a perception of stigma. The first arrangements were with Western European countries; even the US signed two consecutive arrangements in 1963/64. Also, early programmes were en vogue in Latin American countries.<sup>3</sup> 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). In such situations, IMF programme conditionality may 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 of Agreement (Vaubel 1983; Eichengreen 2000; Dreher 2009).<sup>4</sup> 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.<sup>5</sup>

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<sup>3</sup> By 1965 all Latin American countries had at one point in time signed a Stand-by Agreement (SBA).

<sup>4</sup> Article V, Section 3 (a).

<sup>5</sup> Article I, (v) and (vi).

First discussions of IMF stigma have been 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. 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 demonstrations and caused a confidence crisis which was extended to the political class (Djiwandono 2003). No South-Eastern Asian country has asked for an IMF programme since 2001 (IMF MONA database, Reichmann and de Resende 2014).<sup>6</sup>

Second, during the Asian crisis, IMF policy recommendations were perceived as ill-fitting and 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).

While there is no economic reason for an IMF programme stigmatising a country’s government or causing a ‘loss of face’, ill-fitting conditionality could contribute to stigmatising the IMF as a lender. Economically sub-optimal outcomes could lead to protracted problems which might exacerbate a crisis and induce potential contagion (Khan and

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<sup>6</sup>Of the ten member states of the Association of Southeast Asian Nations (ASEAN), only two have signed an IMF arrangement in the century to date: Lao PDR (People’s Democratic Republic) and Vietnam both accessed IMF resources under concessional terms as part of the IMF’s Poverty Reduction and Growth Facility (PRGF).



Sharma 2003), thus further contributing to a negative connotation of IMF conditionality. If IMF conditionality is not perceived as an effective ‘medicine’, countries might try to avoid the cost of seeing the doctor altogether.

The literature finds mixed results regarding the effectiveness of IMF programme conditionality. 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, but their results indicate that IMF programmes may in fact have reduced GDP growth rates. Similar results are found by Dreher (2006). However, these negative results may also be driven by a negative self-selection into IMF programmes, according to which the more reluctant borrowers are those with better fundamentals such that the negative outcomes of those countries opting for a programme are related to worse pre-programme conditions (Bas and Stone 2014, Chapman et al. 2015). 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, 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.

Another factor that might contribute to the limited effectiveness of IMF conditionality is the potentially 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<sup>7</sup> and limited administrative capacity<sup>8</sup> which could contribute to sub-optimal economic or social outcomes, leading to a vicious circle of sub-optimal outcomes triggering more

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<sup>7</sup>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.

<sup>8</sup>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 to an IMF programme or accept it only grudgingly in the wake of a severe liquidity crisis, to further implement 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.

limited ownership among country authorities. This may result in repeated use of IMF funding by the worst performing countries (Bird et al. 2004). As a consequence, IMF programmes may not only become associated with weak authorities and limited macroeconomic adjustment in countries using IMF funding (Reinhart and Trebesch 2016), but may also result in a negative reputation of the IMF itself, contributing to the negative connotation of IMF conditionality and to what is often referred to by the term 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 188 IMF members.<sup>9</sup>

The MONA data were extracted with an algorithm which creates an annualised data set from the publicly available data. Appendix section 7 describes how we programmed this algorithm.

Of the 188 sample countries, 119 have had at least one IMF programme in the 23-year period.<sup>10</sup> 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 had on-going programmes 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 took part in an active IMF programme. While one country (Mali) took active part in Fund-supported arrangements during the entire

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<sup>9</sup>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.

<sup>10</sup>For a list of countries and the number of Fund-supported arrangements signed by each country during the sample period, see Table 1.

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, 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.<sup>11</sup>

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, categorising them into concessional and non-concessional programmes.<sup>12</sup>

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.<sup>13</sup>

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 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 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

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<sup>11</sup>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".

<sup>12</sup>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.

<sup>13</sup>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 5.3.

to 867 percent of member quota after 2009.

Figure 5 shows a similar breakdown of arrangement size and duration along countries' quota and GDP. This brings out the structural divide brought about by the financial crisis: while advanced economies had not started any programme between 1992 and 2008, they did so after the crisis and average arrangement size in this group reached 18 times their quota and nearly 13 percent of GDP. There is also a noticeable increase in programme size in the group of emerging markets, where arrangements averaged 134% of quota for the 1992-2007 period, and 500 percent of quota from 2008 onwards.

More importantly, MONA offers interesting insights into conditionality at each stage of an arrangement throughout the sample.<sup>14</sup> 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).

### 3.2 Direction of Trade Statistics (DOTS)

To measure the importance of neighbours' experience with the IMF, we use the IMF's Statistic Department Direction of Trade Statistics (DOTS) database to identify a country's "neighbours". We use annual time series of merchandise export data for all available countries and years in the sample.<sup>15</sup> 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 learn about country B's experience with IMF lending. Therefore, we conjecture that when considering to seek an IMF programme country A will take country B's experience into consideration with greater weight than, say, country C's experience. The yearly export-shares derived from DOTS are then used to create a Neighbour Trade-Weighted (NTW) Index, which is in turn used to scale measures of neighbours' conditionality experience.

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<sup>14</sup>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.

<sup>15</sup>For the following 13 sample countries export data is not available 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.

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 data set includes information on recent and ongoing banking and currency crisis source 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 (Scheubel and Stracca 2016) and from the IMF’s World Economic Outlook (WEO) database.<sup>16</sup>

We use a similar approach to constructing a the conditionality index for geographical neighbours. 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. To at least partially address this, instead of weighing conditions by trade, we also weigh neighbours’ experience with the IMF by inverse distance of capitals.

## 4 Econometric considerations and estimation approach

### 4.1 Identification

The goal of this paper is to understand the extent to which past experience with 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. The question is why countries facing similar macroeconomic circumstances make different decisions about turning to the IMF for assistance. We assume that learning from past interactions with the Fund and possibly also learning from peers’ experience with the Fund can have an impact on these decisions.

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. On the one hand, the decision to seek IMF support is related to the effectiveness of conditionality. Two alternative scenarios could arise.

First, 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 so there is less need for IMF support. Therefore, we might observe a negative relation between past conditionality and proba-

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<sup>16</sup>Section 5.1 and Table A.1 in the Appendix present the detailed definitions of the variables used in this study.

bility of entering IMF programmes driven by the 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. However, as discussed in section 2, the literature typically finds a negative selection into IMF programmes and thus evidence for recidivism of IMF programmes.

Second, a negative correlation might be explained by a concern that past conditionality did not lead to the desired macroeconomic adjustment or even brought on adverse economic and social consequences. This scenario would be relevant for countries which had an IMF programme in the past that was (perceived as) unsuccessful.

Whether a programme was unsuccessful or perceived as such is particularly hard to measure as perceptions are difficult to quantify. The extent to which a programme is perceived as particularly hard or tough to shoulder is a possible proxy. We follow the literature (e.g. Caraway, Rickard and Anner 2012) in classifying programme conditionality as 'hard' if it entails a large number of conditions, particularly those that need to be met at the beginning of a programme. The literature also evaluates the effectiveness of IMF conditionality by studying the number of conditions associated with IMF-supported arrangements, often separately for different types of conditions and different fields. We also follow the approach of looking at the number of conditions for specific types of conditions.

In particular, we look at two distinct groups of conditions, based on their approximate stringency. Similar to previous work on IMF conditionality, we consider so-called Prior Actions, together with Performance Criteria, as 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 Performance Criteria (QPCs) and Structural Performance Criteria (SPCs) – need to be met for the continuation of an arrangement bar cases when the Fund issues a waiver.<sup>17</sup> By contrast, Structural benchmarks (SBs) and indicative 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 different measures of conditionality, which are further described in section 5.1.

This brings us to a first testable hypothesis.

**Hypothesis 1** *Conditioning on key macroeconomic variables and other relevant ex-*

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<sup>17</sup>Note that SPCs were discontinued in 2009.

*planatory 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 1* 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 particularly hard in countries which are very similar or very close. It is likely that a country can observe the experience of its geographical neighbours as well as of its trading partners. In today's interconnected world, every country should have at least a few trading partners participating actively in IMF programmes.

As in our sample an average of 4 out of every 10 trading partners have had at least one IMF arrangement in the past, we are able to enrich our analysis 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).

In particular, we include a weighted index of past total and 'hard' conditionality of trade partners and, separately, regional neighbours.<sup>18</sup> The total conditionality index is computed as the weighted average of the total number of conditions for those trade partners which in the past have had an IMF programme. The weights are defined by the share of exports going to each country.<sup>19</sup> Hard conditionality of partner countries, computed in a similar manner, only considers the stricter type of IMF conditions, i.e. PAs and PCs. We further calculate a 5-year moving average of the trade-weighted total and 'hard' conditionality indices. In our sensitivity analysis we consider several measures of IMF conditionality.

Figure 6 shows that the index of neighbour trade-weighted (NTW) conditionality is available for a diverse set of countries and displays sufficient variation over time. The figure shows 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 left hand scale). Looking at Vietnam, for instance, note that the share of its neighbours

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<sup>18</sup>Please see section 3.2 for a distinction between importing and exporting trade partners.

<sup>19</sup>Say, for example, that country X has 4 trade partners (A/B/C/D), to which it exports its production as 15/20/30/35. Further assume that only 3 of the country's 4 exporting partners have entered IMF programmes in the last 5 years. Of the 3 trade partners actively engaged in IMF arrangements, they each experienced conditionality...

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 short-dashed and long-dashed lines depict neighbour conditionality: total number of neighbours' trade-weighted conditions (long-dash, navy) and hard conditionality alone (green short-dashed line, PAs and PCs). A peak in neighbour trade-weighted conditionality is apparent during the early 2000s.

We extend *Hypothesis 1* as follows:

**Hypothesis 2** *Conditioning on key macroeconomic variables and other relevant explanatory variables, a country whose 'neighbours' (defined either as trade partners or regional neighbours or just similar countries) were exposed to conditionality associated with past IMF programmes should, ceteris paribus, be less likely to enter an IMF arrangement.*

In our attempt at shedding light on the relation between previous IMF experience with conditionality and country's probability of seeking IMF support, we are in addition faced with the endogeneity of own IMF exposure. To the econometrician, an ideal experiment would allow prior experience with IMF arrangements to be randomly assigned across 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 deterring effect of IMF conditionality, or past experience of it, from many supply and demand factors which shape the probability of entering an IMF programme. Countries may face different types of balance of payments problems and only for some of these they may prefer to approach the IMF for help. A short term liquidity, or 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 balance of international payments problems used to seek IMF help more often in the past, but more recently some IMF members also have access to Regional Financing Arrangements (RFAs).

To identify the single demand factor of past conditionality, we control for other demand and supply factors at any given time. To this end, we condition on key determinants of a country's current and past macroeconomic situation. Aside from several baseline macroeconomic variables widely regarded in the literature as being related to the probability of seeking IMF support, we also control for additional macroeconomic factors, as well as institutional and political economy determinants. In terms of macroeconomic variables, we include lags of the following indicators: real GDP per capita



growth, international reserves in months of imports, current account, gross fixed capital formation, real effective exchange rate, real effective exchange rate overvaluation, and trade openness. In terms of institutional and political variables, we include the degree of centralised decision-making, voting with the US in the UN General Assembly, the Rule of Law index from the World Development Indicators, and the Political Stability index from the International Country Risk Guide (ICRG). We also include the number of IMF programmes a country has had in the past in some specifications, which we refer to as “IMF history”. 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 from the GFSN. Assuming that we have included all other determinants of agreeing on an IMF programme, we can estimate the residual effect of past average conditionality. Also, we can investigate how sensitive our estimated parameters of interest are to the inclusion of various controls. This gives us some indication of potential endogeneity problems.

## 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.<sup>20</sup> Hence, our main dependent variable is 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.

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 observable only as a binary choice.

The latent process can be written as:

$$I_{i,t}^* = \alpha + \beta \mathbf{X}_{it} + \theta \mathbf{Z}_{it} + \gamma \mathbf{J}_{it} + \xi \mathbf{G}_{it} + \xi \mathbf{C}_i + \delta T_t + \alpha_i + u_{it}. \quad (1)$$

$I_{i,t}^*$  describes the likelihood of agreeing on an IMF programme, which we can only observe as a binary variable taking the value 1 when country  $i$  agrees on an IMF programme in

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<sup>20</sup>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.

time  $t$ :<sup>21</sup>

$$\begin{aligned} I_{i,t} &= 1 \text{ if } I_{i,t}^* \geq 0 \\ I_{i,t} &= 0 \text{ if } I_{i,t}^* \leq 0 \end{aligned}$$

The vector  $\mathbf{X}_{i,t}$  includes macroeconomic explanatory variables, as detailed in section 5.1. The vector  $\mathbf{Z}_{it}$  contains a weighted average of the macroeconomic variables of country  $i$ 's trade partners (i.e. a weighted average of the trade partners'  $\mathbf{X}_{it}$  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 trade partner in country  $i$ 's total exports. The vector  $\mathbf{J}_{it}$  is our contribution to the model in that it contains proxies for IMF stigma and it includes own and trade partners' total and, in other depending on the specification, 'hard' conditionality.

Building on the baseline specification, vector  $\mathbf{G}_{it}$  is included in subsequent estimations, forming the basis for our sensitivity analysis. It includes additional macroeconomic controls as well as containing country  $i$ 's history with the IMF (i.e. number of past programmes), comprising institutional and political economy variables. Similarly, vector  $\mathbf{C}_{it}$  is added in some specifications, depicting institutional and political economy variables for neighbours.

Exploring the panel structure of our data, we control for time-invariant unobserved country characteristics  $\alpha_i$ , employing a fixed-effects model. We also control for time fixed effects  $T_t$ .  $u_{it}$  denotes the idiosyncratic error term.

## 5 Empirical results

### 5.1 Definition of variables and descriptive statistics

We follow Knight and Santaella (1997) and Barro and Lee (2005) and condition the regressions 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. In this section, we define in detail the variables used in our model estimation, providing also summary statistics of

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<sup>21</sup>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.

these variables.<sup>22</sup>

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.<sup>23</sup>

Regarding own country's macroeconomic controls, 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, which 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.

To quantify a country's previous experience with Fund-supported programmes, we include the country's own exposure to past IMF conditionality. We use conditionality in 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. 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 PAs and PCs, i.e. a subset of the total number of conditions deemed as essential for the start and continuation of IMF arrangements.

As part of our sensitivity analysis, we introduce additional macroeconomic and institutional control variables. We include macroeconomic covariates, such as trade openness, growth rate of the terms of trade, export growth and a dummy to reflect a country's

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<sup>22</sup>Table A.1 in the Appendix details the types and sources of the variables used in the paper.

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

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. Moreover, we include additional institutional indicators which have been found to be strong determinants of economic development. In particular, 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.

To better condition on financing needs, we also estimate our baseline model explicitly conditioning on the occurrence of several types of crises. We first look at capital flow reversals as defined by Forbes and Warnock (2012). In particular, we 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 and 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 current account in year  $t$  is one standard deviation below its 5-year moving average. To ensure symmetry, we also control for trade partners’ macroeconomic conditions. The macroeconomic variables pertaining to trade partners are defined similarly to the own country macroeconomic variables of interest and are weighted by the partners’ 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 trade partners are engaged in an IMF supported programme during our sample period.

## 5.2 Benchmark and trade-weighted 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.

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 parsimo-

nious model where we control for macroeconomic variables regarded in the literature as determinants of IMF arrangements. Column (1) of Table 6 shows that, as expected, high real per capita GDP growth and high levels of international reserves reduce the 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, but the correlation is not statistically significant.

To the sparse model described above, we introduce our variable of interest: IMF conditionality. First, we investigate the effects of countries’ own prior experience with IMF conditionality on the likelihood of starting new arrangements. We expect that a country’s own past exposure to IMF conditionality, quantified by the average number of total conditions associated to programmes initiated in the previous 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.

Note that introducing own previous conditionality to the sparse model, as presented in columns (2) and (3) of Table 6, does not change the quality of the model: the effects of 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 nearly a third.

Further, column (3) of Table 6 is essentially identical to column (2), except that we replace previous conditionality by previous hard conditionality, i.e. we focus on the effects of PAs and PCs rather than on the effects of total previous conditionality. In terms of magnitude, one additional standard deviation in a country’s past experience with hard IMF conditionality is associated with a decline in likelihood of entering a new programme by a fifth of the average sample likelihood. Note that the quality of our results remains unchanged. A country’s own macroeconomic covariates continue to be persistent to the inclusion of the hard conditionality indicator and display the expected correlation. In essence, columns (2) and (3) provide a test of *Hypothesis 1*, distinguishing solely between total and hard conditionality. We read the results as supportive of *Hypothesis 1*.

Second, we investigate the effects of countries’ trade partners’ prior experience with

IMF conditionality on the likelihood of starting new arrangements. Namely, the second variable of interest introduced in Table 6 takes the form of trade-weighted (TW) total conditionality (columns (4)) and trade-weighted (TW) hard conditionality (columns (5)).

At the same time, in columns (4) and (5) of Table 6 we further include macroeconomic control variables for countries' trading partners, weighted by trade shares. We mirror the own country macro variables by including the trade-weighted, per capita real GDP growth of trading partners, as well as partners' weighted international reserves in months of imports and current account positions. Trade partners' macroeconomic covariates display the expected signs, and we construe the relatively strong, statistically significant negative correlation between partners' growth and countries' likelihood of starting IMF programmes to be a sign of possible spill-over effects: having flourishing trade-partners, which exhibit strong per capita GDP growth, could point to higher trade, higher exports for the country of interest, possibly associated with a stronger balance of payments and diminished need for IMF assistance. Partners' trade-weighted reserves and current account positions do not appear to be correlated to own country's probability of entering a new programme.

While the effects of countries' own macroeconomic characteristics and own prior exposure to IMF conditionality are robust to the inclusion of trade-partner weighted conditionality and macro-controls, the effect of trade partners' conditionality, both total and hard conditionality, on countries' likelihood of entering new IMF-supported arrangements is weakly positive and statistically not significant. Hence, columns (4) and (5) provide a test of *Hypothesis 2*, distinguishing again between partners' trade-weighted total and hard conditionality in each column. However, we find no evidence in support of *Hypothesis 2* in our baseline results.

As a country may learn more from its direct, regional peers than from its trade partners which in some cases may be in other parts of the world, we re-estimate 6 for a country's regional neighbours. The index of neighbour-weighted (NW) conditionality is constructed in a similar way to a country's trade partner-weighted conditionality, but total and hard conditions are weighed by the inverse distance of two countries' capitals. The results of this exercise are shown in table 7. It is obvious from table 7 that coefficients if at all differ only marginally and the magnitude of the effects is confirmed. Importantly, we find broadly the same coefficients on the impact of own conditionality, with a stronger effect of past hard conditionality. In addition, also the distance-weighted neighbour conditionality is not significant.

In the following, we therefore consider column (5) of Table 6 to be our benchmark specification. In the next section we investigate whether the negative effect of countries'

own prior exposure to 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.

### 5.3 Sensitivity analyses

Tables 8 through 10 start from the baseline specification in column (5) 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 8 and 9 show that controlling for additional macroeconomic variables, both of the country itself, as well as of countries' neighbours, does not alter the results of our benchmark estimation. What is more, the effect of a country's own past exposure to hard conditionality on a country's likelihood of turning to the IMF for assistance remains statistically significant and reassuringly robust. Of the added macro variables, a country's access to alternative sources of financing, proxied by the Global Financial Safety Net (GFSN) index, appears to be of highest statistical significance. The value of the coefficient is, however, modest and might, for instance, capture the tangency between the award of IMF resources and funds originating from Regional Financing Arrangements (RFAs). Trade openness also appears to be negatively correlated to a country's probability of entering an IMF supported programme, implying that countries with higher shares of exports and imports relative to GDP might be less inclined to seek IMF assistance. In line with the non-significant effects of trade-weighted conditionality, the inclusion of additional partner trade-weighted macro variables does not yield statistically significant correlations, while showcasing the robustness of the results presented in the baseline estimation.<sup>24</sup>

Including political economy variables in our specifications, as shown in table 10, yields our benchmark results robust once again. The additional political controls are largely not statistically significant, with the exception of the IMF quota, which would suggest that countries with higher IMF quota are more likely to enter Fund-supported arrangements, while less politically stable countries are less likely to start IMF programmes. The value and statistical significance of own past conditionality remains robust to the inclusion of further political controls, while the role of trade partner conditionality stays weak and not statistically significant. These results merits further investigation.

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<sup>24</sup>Although Tables 8 and 9 introduce the macroeconomic controls one at a time, the results are robust to the simultaneous inclusion of the covariates (results available upon request).

In Table 11 we condition on the occurrence of various crises. In the last column we include a dummy which takes the value 1 if a country's current account moving average for the previous 5 years was one standard deviation below its long term average, to signal a persistent CA deficit. Table 11 yields mixed results. Restricting our sample to countries which experienced a decrease in gross private inflows or an increase in private outflows suggests that neither own past hard conditionality, nor partners' experience with IMF conditionality in the past plays a role in the decision whether to enter IMF arrangements. In such situations of capital flow reversals, the decision to seek IMF support is autonomous from past exposure to IMF conditionality. However, when experiencing banking or currency crises, or when dealing with a persistent CA deficit, countries' past exposure to hard IMF conditionality has a strong, negative influence on their decision to agree on IMF support again. Moreover, countries experiencing currency crises seem to consider trade-partners' previous exposure to hard IMF conditionality as a negative and statistically significant influence, however weakly significant.

As anticipated in section 3, Table 12 re-estimates the benchmark specification splitting the sample into concessional and non-concessional lending from the IMF. While the effect of own past exposure to IMF conditionality appears to be negative and strongly significant for both types of IMF resources, the effect of trade partners' exposure to hard IMF conditionality is correlated with a decrease in the probability of entering new IMF programmes only for non-concessional lending, when allowing for both concessional and non-concessional arrangements of trade partners. This suggests that countries drawing IMF funds at concessional terms are less likely to be swayed by their partners' experience with conditionality compared to countries that access IMF resources under non-concessional terms, paying full interest.

When further distinguishing between concessional and non-concessional arrangements also for trade partners, i.e. excluding cross-effects by calculating trade-weighted conditionality associated only to trade partners' non-concessional arrangements for countries which themselves enter non-concessional arrangements (and similarly allowing for countries receiving concessional support to only be affected by trade partners which also receive concessional IMF support), it emerges that our results are driven by IMF's non-concessional lending, in line also with the literature. The effects of a country's own prior exposure to total and hard IMF conditionality remain negative and statistically significant in the sub-sample of non-concessional lending. Moreover, trade-partners' weighted conditionality also appears to have a negative effect on countries' likelihood of entering new IMF programmes, although the effect is not statistically significant at any of the traditional levels. However, when only inspecting concessional lending, the effect of coun-



tries' own past experience with IMF conditionality is no longer statistically significant, and trade-partner total conditionality presents a positive, weakly statistically-significant effect on the likelihood of starting new arrangements.

When further estimating our model in various sub-samples, based on geographical regions and levels of development, as shown in Tables 13 through 16, what stands out is the robustness of our baseline findings: the effect of countries' own experience with IMF hard conditionality is negatively correlated to their probability of entering new IMF-supported programmes, particularly in emerging and developing economies, in countries across all continents, bar the Americas.<sup>25</sup> Not only that, but column (5) of Table 15 also provides evidence that Asian countries are less likely to enter IMF assistance programmes under the influence of their partners' past experience with IMF hard conditionality.<sup>26</sup>

## 6 Conclusion

*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*

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. 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 literature often mentions stigma in the context of analyses of conditionality as the inevitable other side of the coin and as part of the conditionality-related cost of IMF financial support. According to this understanding, 'stigma' only

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<sup>25</sup>This is particularly interesting against the background that Bird and Mandilaras (2011) do not find any effect of past IMF programmes on subsequent reserve accumulation, except for Latin America.

<sup>26</sup>The temporal division before and after the Asian Crisis, as well as a test of the effects of the 2009 Reform remain to be added.

measures the cost of conditionality and should not be worrisome from an economic point of view. However, the literature also recognises that IMF conditionality may not always be most effective and may even have (unintended) negative consequences. If the IMF's 'medicine' is not perceived as helpful, or even as detrimental, and if countries learn from own or peers' past experience, IMF conditionality may contribute to stigmatising the IMF.

In this paper, we take a closer look at how learning from past experience with IMF conditionality can shape the reluctance of entering an IMF arrangement. Therefore, we measure IMF stigma as 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 the reputation of policy makers in the countries which ask for IMF financial assistance.

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 including the possibility of learning from own and peers' past experience. We look at how past '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 financial assistance and support in improving economic policies versus potential negative effects on macroeconomic outcomes. Conditionality affects both elements of this trade-off. Adequate conditionality may positively affect future macroeconomic outcomes while ineffective conditionality may lead to negative economic outcomes. As conditionality is an outcome of negotiations, a country can only learn which conditions to expect from its own past experience with the Fund as well as from peers in a comparable economic situation.

We separate learning from own and learning from peers' experience by taking a closer look at IMF conditionality recorded in the IMF MONA data base. We first separate '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, but also consider 'hard' and 'soft' conditionality of a country's geographical neighbours and trading partners, assuming that observing many 'hard' conditions among a country's geographical neighbours and trading partners would change its expectation of IMF conditionality.

For showing the effects of conditionality on a country's likelihood of asking for an IMF programme during a crisis, we use a linear probability model conditioning for crises, macroeconomic conditions and availability of other sources of financial support. We find that a country's own past experience with IMF conditionality reduces the likelihood of agreeing to enter an IMF programme, while neighbours' previous exposure to hard conditionality is significant only in certain regions and for countries experiencing currency crises. Moreover, neighbours' experience matters most in ASEAN countries.

Our findings on other determinants of entering an IMF programme are in line with the literature.

These results point to the role that 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 IMF stigma.

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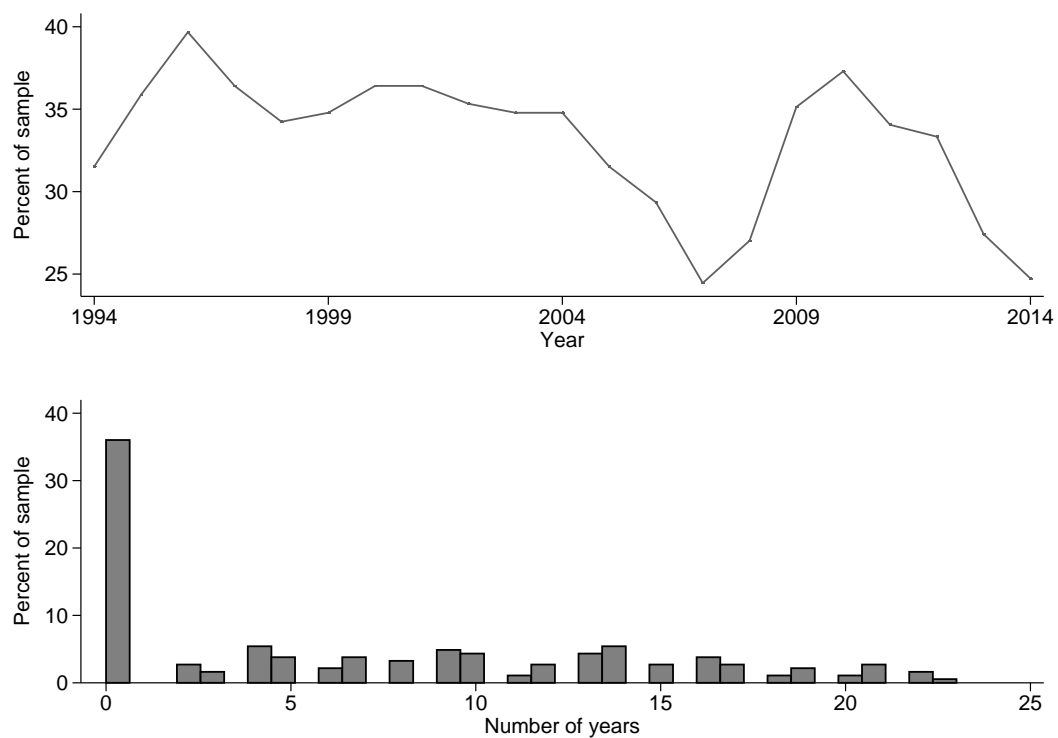
Vaubel, R. 1983. The Moral Hazard of IMF Lending. *World Economy*. 6 (3): 291-304.

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

Warr, P.G. 1999. What Happened to Thailand? *World Economy*. 22 (5): 631-650.

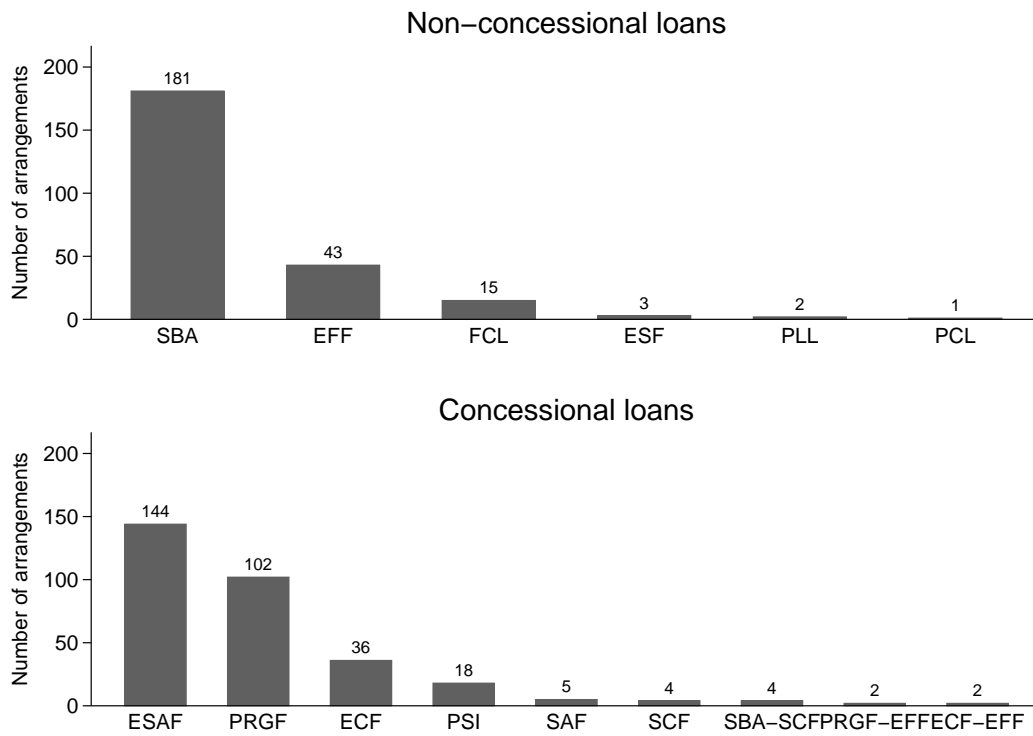
## Figures

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.

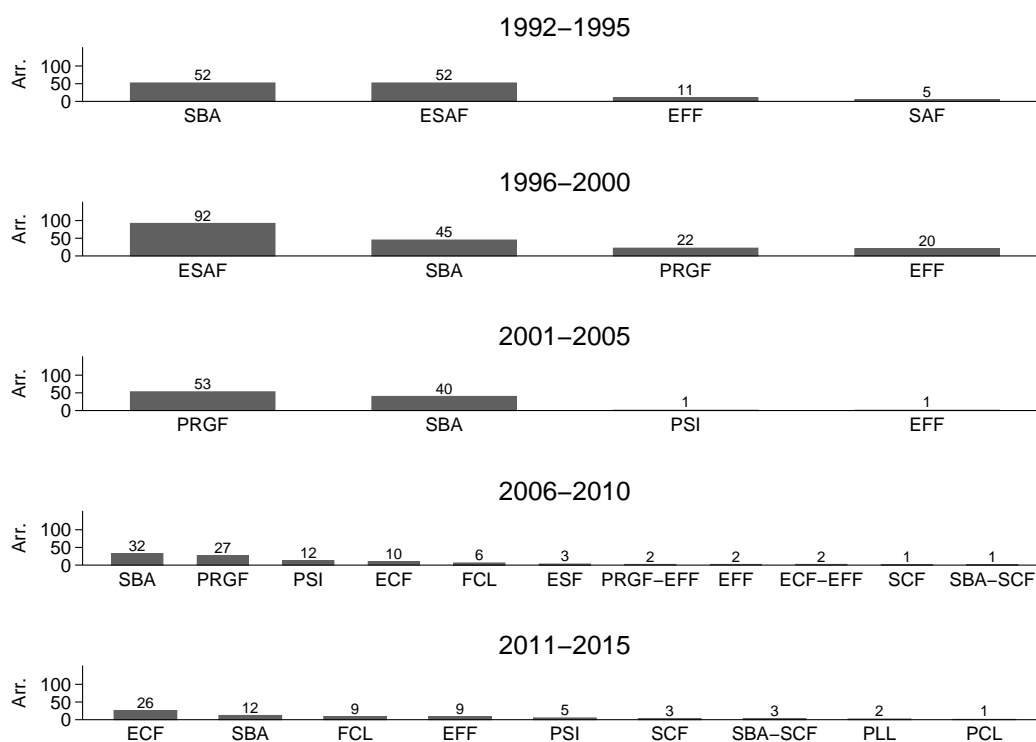
Figure 2: Total number of concessional and non-concessional sample arrangements by type



*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.

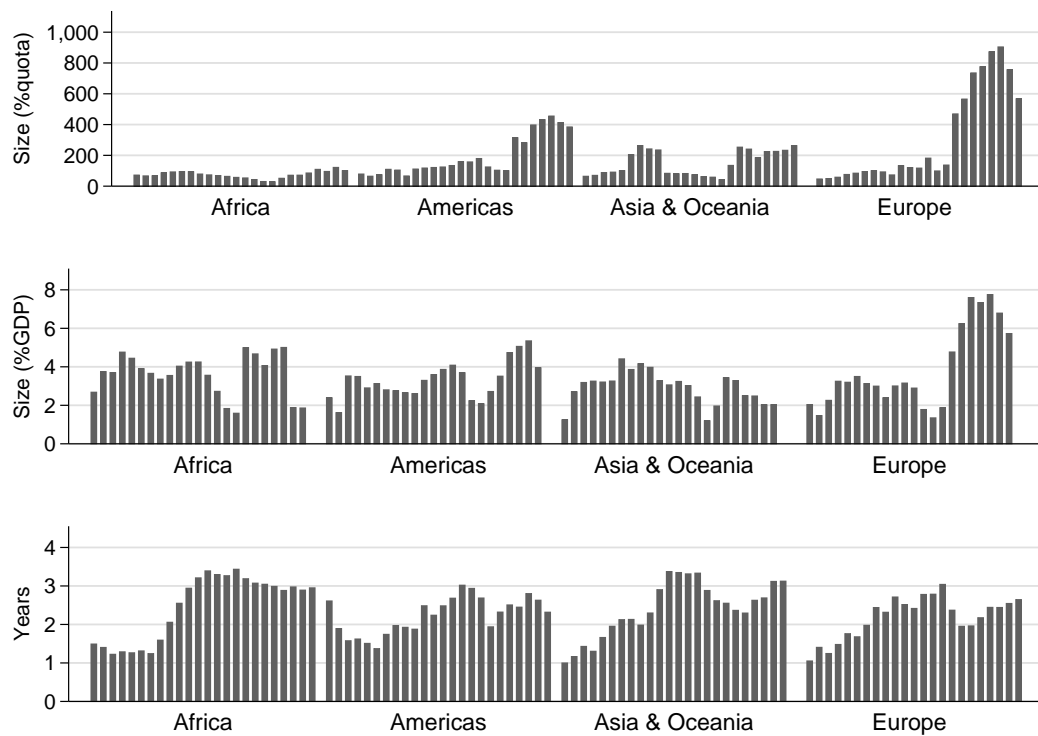


Figure 3: Breakdown of sample arrangements by type and time interval



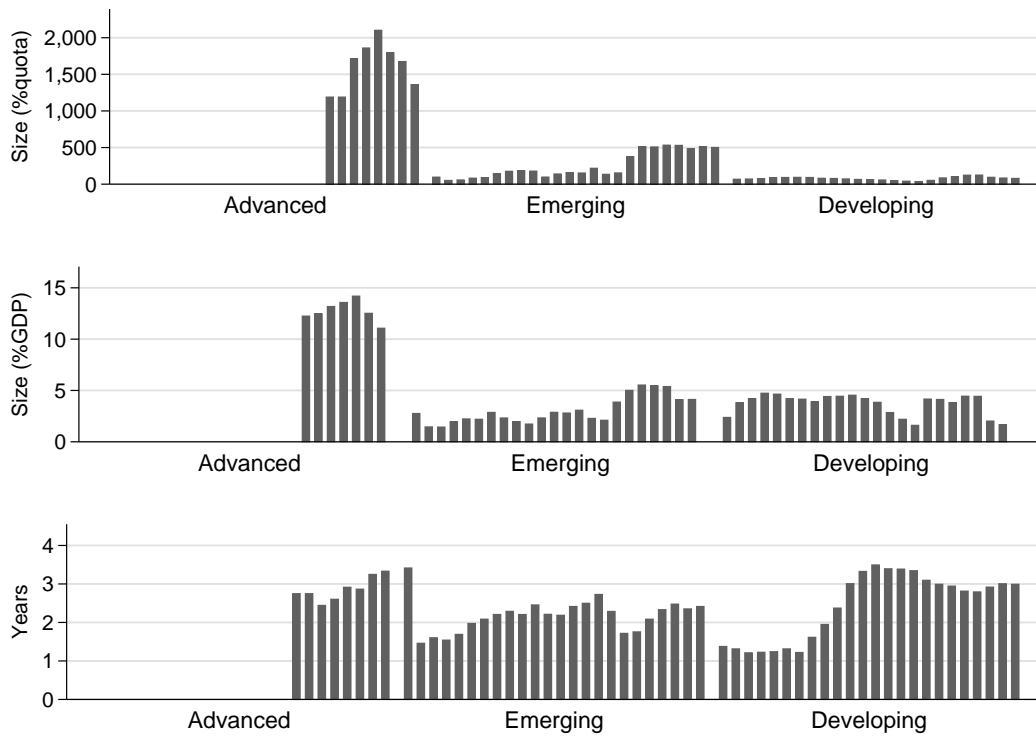
Source: IMF MONA database. Number of arrangements by type during sample five-year intervals.

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



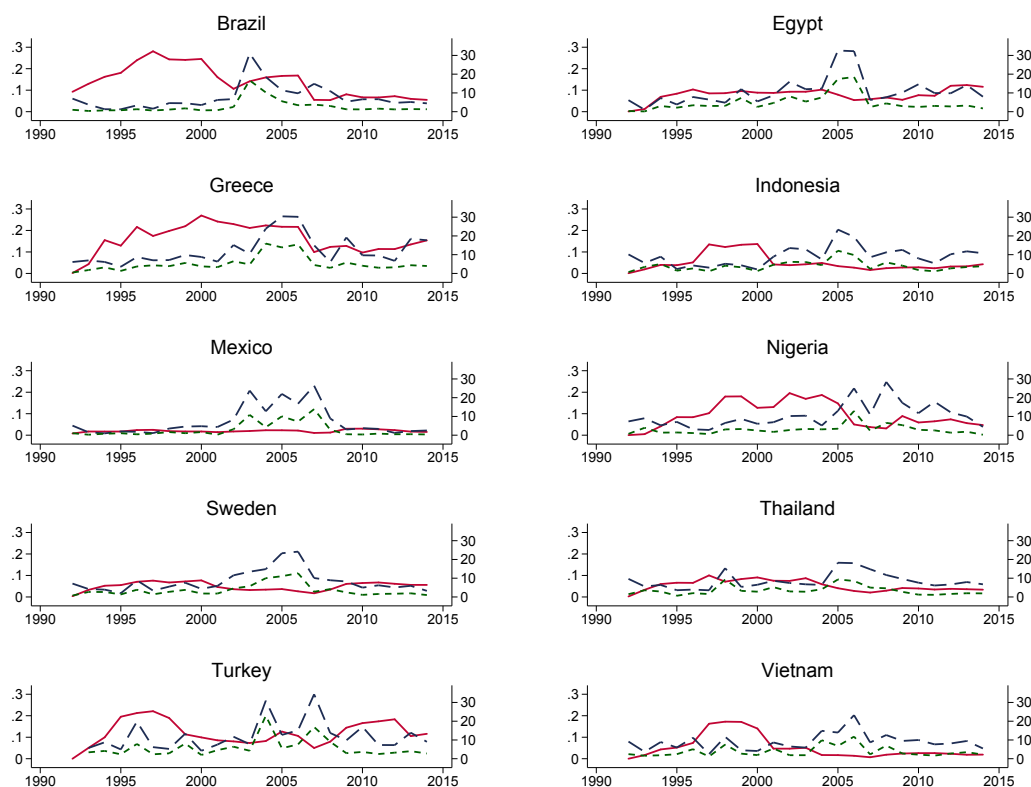
*Source:* IMF MONA database, own calculations. Each panel graphs the annual average size and duration of arrangements in sample countries between 1992 and 2015, along regional lines (grouped by geographic region). Year labels were excluded for aesthetic purposes and each bar corresponds to year-region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

Figure 5: Size and duration of sample IMF programmes by quota, GDP and year



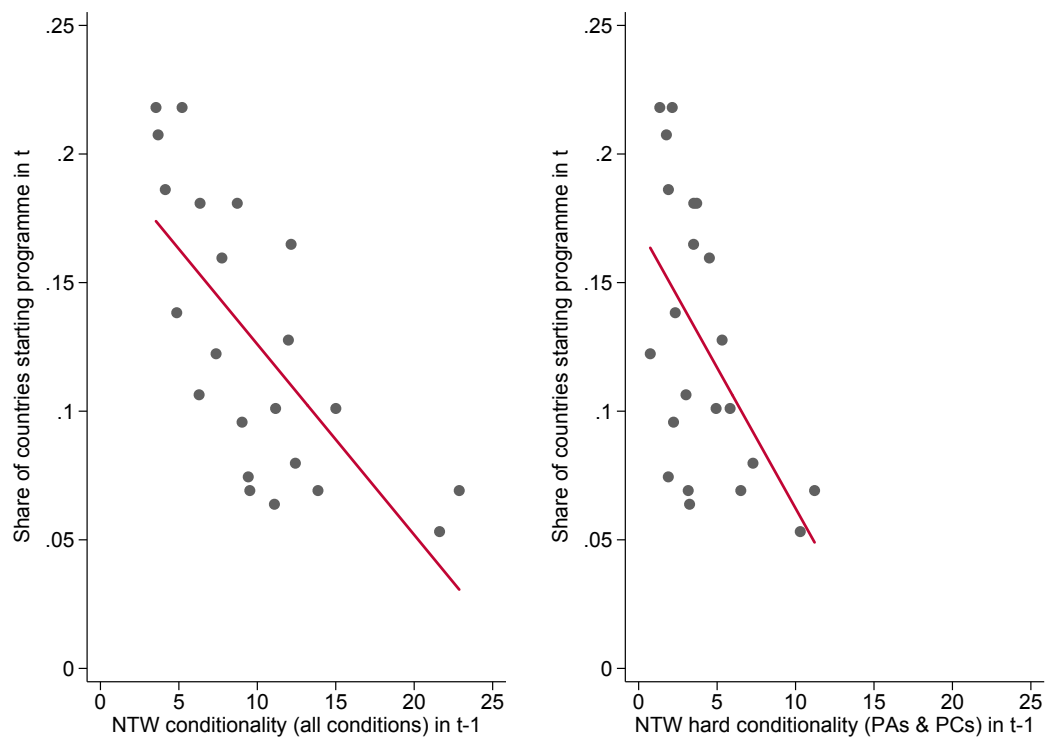
*Source:* IMF MONA database. Each panel graphs the annual average size and duration of arrangements in sample countries between 1992 and 2015, grouped by level of development. Year labels were excluded for aesthetic purposes and each bar corresponds to average size and duration, grouped by development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

Figure 6: Selected countries: Evolution over time of the trade-weighted share of partners with IMF arrangements (lefthand scale) and partners' trade-weighted conditionality, total number of conditions (soft and hard) and hard conditions only (righthand scale)



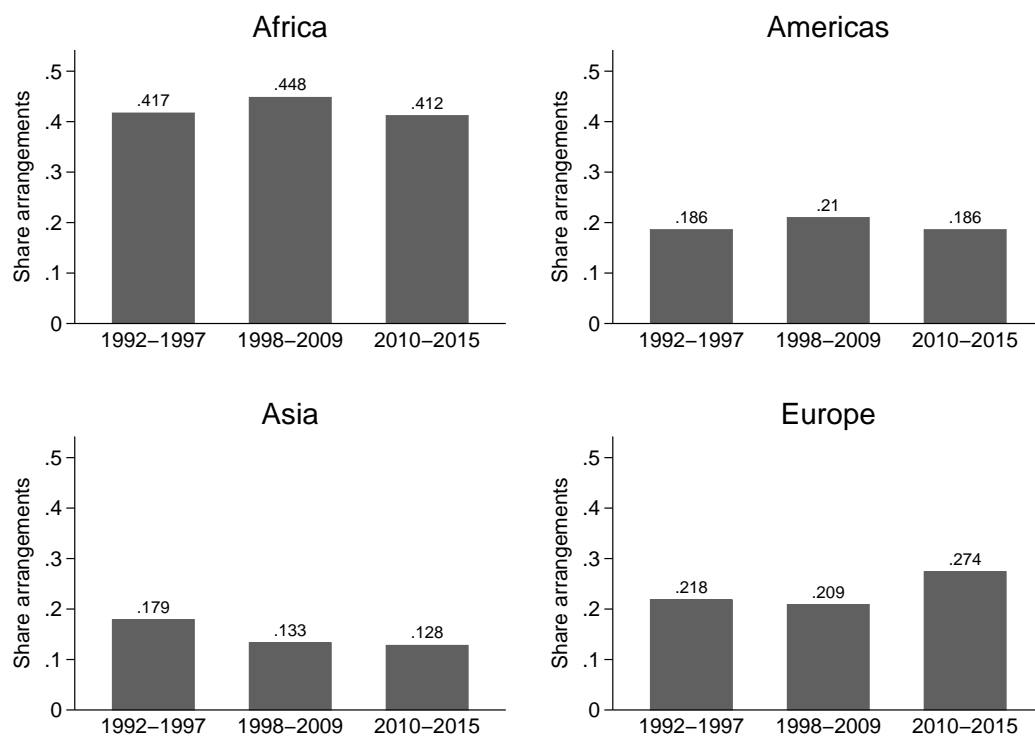
*Source:* MONA and DOTS, own calculations. The continuous red line corresponds to the lefthand scale of each country graph, ranging from 0 to 0.3. It represents the trade-weighted proportion of partners which have an active Fund-supported programme in each respective year (calculations equivalent to the top panel of Figure 1). The navy (long-dashed) and green (short-dashed) lines correspond to the righthand scale which ranges from 0 to 35. The navy long-dashed line represents the trade-weighted total number of conditions – soft and hard – of each country's trading partners, over time. The dark green short-dashed line represents the trade-weighted total number of hard conditions (prior actions, structural and quantitative performance criteria) of each country's trading partners, over time.

Figure 7: Correlation between the share of countries starting arrangement in year  $t$  and partners' trade-weighted 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 trade partners' weighted conditionality in year  $t - 1$ , measured as total number of conditions weighted by partners' trade-share: all condition types (left), hard conditions, i.e. prior actions and performance criteria (right).

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.

## Tables

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	<b>Total</b>	<b>563</b>



Table 2: Brief description of arrangement types

Arr. Type	Timeline	Concess.	Access (% quota)	Length	Repayment	Precautionary
SAF*	1992-1995	Yes	Preceded ESAF, similar			
ESAF <sup>1*</sup>	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 <sup>2</sup>	2005-2015	Yes	Fund support			Both
ESF*	2008-2009	No	75	12-24 months	5 1/2 - 10 years	No
FCL <sup>3</sup>	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 <sup>5*</sup>	2011	No	1000/500	12-24 months	3 1/4-5 years	Yes
PLL <sup>4</sup>	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. A star (\*) indicates that an arrangement type has been discontinued. 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
<b>Total</b>		<b>563</b>

*Source:* IMF MONA database.

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

<b>Conditions</b>	
IT	Indicative Target
PA	Prior Action
QPC	Quantitative Performance Criteria
SAC	Structural Assessment Criteria
SB	Structural Benchmark
SPC	Structural Performance Criteria
<b>Economic areas</b>	
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.)
<b>Implementation status</b>	
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
TW RGDP growth, per capita	3037	2.15	2.25	-11.73	10.38
TW reserves	3036	4.26	1.51	.07	14.72
TW current account	3037	-3.39	4.57	-30.9	22.49
Partner 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
TW conditionality	3037	10.69	8.18	0	63.28
TW 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: trade partners

VARIABLES	(1)	(2)	(3)	(4)	(5)
PC RGDP growth (5-yr MA)	-0.0113*** (0.0026)	-0.0117*** (0.0028)	-0.0114*** (0.0027)	-0.0104*** (0.0029)	-0.0102*** (0.0027)
Reserves <sub>t-1</sub>	-0.0084* (0.0043)	-0.0083** (0.0041)	-0.0083** (0.0042)	-0.0087** (0.0040)	-0.0087** (0.0042)
Current account <sub>t-1</sub>	-0.0014 (0.0009)	-0.0016 (0.0010)	-0.0015 (0.0009)	-0.0015 (0.0010)	-0.0014 (0.0009)
Own IMF history	-0.0275 (0.0179)	0.0122 (0.0221)	-0.0025 (0.0223)	0.0105 (0.0214)	-0.0048 (0.0215)
Own past cond.		-0.0055*** (0.0015)		-0.0057*** (0.0015)	
Own past HC			-0.0082*** (0.0031)		-0.0084*** (0.0030)
TW PC RGDP growth (5-yr MA)				-0.0082** (0.0040)	-0.0085** (0.0040)
TW reserves <sub>t-1</sub>				0.0016 (0.0058)	0.0012 (0.0058)
TW current account <sub>t-1</sub>				-0.0020 (0.0019)	-0.0021 (0.0019)
TW past cond.				0.0019 (0.0015)	
TW past HC					0.0004 (0.0026)
Constant	0.2658*** (0.0412)	0.2668*** (0.0413)	0.2655*** (0.0412)	0.2620*** (0.0479)	0.2693*** (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	0.0523	0.0502	0.0542	0.0516
F-test	5.1563	5.0195	4.9882	4.9490	4.6292
Prob>F	0.0000	0.0000	0.0000	0.0000	0.0000

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;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. A description of the variables can be found in section 5.1 and Table A.1. Past conditionality represents the 5-year moving average of the total number of conditions if the country has had an active IMF arrangement during during that time, while HC stands for hard conditionality and past HC represents the 5-year moving average of the country's total number of hard conditions, i.e. prior actions and performance criteria.

Table 7: Baseline estimation results: geographical neighbours

VARIABLES	(1)	(2)	(3)	(4)	(5)
PC RGDP growth (5-yr MA)	-0.0102*** (0.0026)	-0.0104*** (0.0029)	-0.0102*** (0.0027)	-0.0085*** (0.0029)	-0.0083*** (0.0027)
Reserves <sub>t-1</sub>	-0.0085** (0.0043)	-0.0084** (0.0041)	-0.0085** (0.0042)	-0.0084** (0.0043)	-0.0086** (0.0044)
Current account <sub>t-1</sub>	-0.0015 (0.0009)	-0.0016* (0.0010)	-0.0015 (0.0009)	-0.0016 (0.0010)	-0.0016 (0.0010)
Own IMF history	-0.0288 (0.0182)	0.0093 (0.0229)	-0.0040 (0.0220)	0.0078 (0.0223)	-0.0076 (0.0219)
Own past cond.		-0.0053*** (0.0015)		-0.0058*** (0.0015)	
Own past HC			-0.0081** (0.0031)		-0.0087*** (0.0030)
NW PC RGDP growth (5-yr MA)				-0.0334*** (0.0103)	-0.0349*** (0.0100)
NW reserves <sub>t-1</sub>				-0.0195 (0.0212)	-0.0218 (0.0210)
NW current account <sub>t-1</sub>				0.0027 (0.0047)	0.0033 (0.0047)
NW past cond.				0.0046 (0.0057)	
NW past HC					-0.0062 (0.0108)
Constant	0.2686*** (0.0398)	0.2698*** (0.0398)	0.2680*** (0.0396)	0.3614*** (0.0835)	0.3948*** (0.0824)
Observations	3,066	3,066	3,066	3,066	3,066
Number of reportercode	170	170	170	170	170
Adjusted R-squared	0.0451	0.0504	0.0487	0.0552	0.0532
F-test	4.7987	4.5700	4.5941	4.7787	4.6082
Prob >F	0.0000	0.0000	0.0000	0.0000	0.0000

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;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. A description of the variables can be found in section 5.1 and Table A.1. Past conditionality represents the 5-year moving average of the total number of conditions if the country has had an active IMF arrangement during during that time, while HC stands for hard conditionality and past HC represents the 5-year moving average of the country's total number of hard conditions, i.e. prior actions and performance criteria. NW variables are weighted by the inverse-distance of geographical neighbours.

Table 8: Estimation results: additional macro controls

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Own past HC	-0.0094*** (0.0032)	-0.0096*** (0.0033)	-0.0098*** (0.0033)	-0.0098*** (0.0033)	-0.0098*** (0.0033)	-0.0098*** (0.0032)	-0.0098*** (0.0033)	-0.0098*** (0.0033)	-0.0099*** (0.0033)	-0.0097*** (0.0033)
TW past HC	-0.0039 (0.0029)	-0.0041 (0.0028)	-0.0035 (0.0029)	-0.0035 (0.0029)	-0.0036 (0.0029)	-0.0034 (0.0029)	-0.0036 (0.0029)	-0.0035 (0.0029)	-0.0031 (0.0029)	-0.0035 (0.0029)
GFSN access <sub>t-1</sub>		0.0001*** (0.0000)								
VIX <sub>t-1</sub>			-0.0660** (0.0319)							
REER overvaluation <sub>t-1</sub>				0.0004 (0.0007)						
REER <sub>t-1</sub>					-0.0002 (0.0005)					
Trade openness <sub>t-1</sub>						-0.0010** (0.0004)				
Exports growth <sub>t-1</sub>							0.0005 (0.0006)			
Imports growth <sub>t-1</sub>								-0.0009 (0.0007)		
Gross government debt <sub>t-1</sub>									0.0006** (0.0003)	
Gross fixed K formation <sub>t-1</sub>										-0.0026 (0.0019)
Constant	0.8728** (0.4274)	0.2184*** (0.0487)	1.0740** (0.4410)	0.2361*** (0.0483)	0.2533*** (0.0694)	0.3079*** (0.0622)	0.2345*** (0.0483)	0.2388*** (0.0493)	0.1910*** (0.0518)	0.2846*** (0.0623)
Observations	2,388	2,388	2,388	2,388	2,388	2,388	2,388	2,388	2,388	2,388
Number of reportercode	157	157	157	157	157	157	157	157	157	157
Adjusted R-squared	0.0353	0.0311	0.0266	0.0263	0.0263	0.0280	0.0266	0.0277	0.0280	0.0276
F-test	4.4594	4.5224	2.7964	2.7547	2.9105	2.7176	2.7993	2.6958	2.7917	2.7409
Prob >F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;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 (trade-weighted per capita real GDP growth, international reserves and current account). The first column presents the variables of interest in our estimation, when simultaneously controlling for all subsequent covariates presented in columns (2)-(10).

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

VARIABLES	(1)	(2)	(3)	(4)	(5)
Own past HC	-0.0084*** (0.0030)	-0.0084*** (0.0030)	-0.0084*** (0.0030)	-0.0083*** (0.0030)	-0.0084*** (0.0030)
TW past HC	0.0004 (0.0027)	0.0005 (0.0027)	0.0004 (0.0027)	0.0004 (0.0026)	0.0001 (0.0027)
TW trade openness <sub>t-1</sub>		0.0001 (0.0004)			
TW TT growth <sub>t-1</sub>			0.0005 (0.0009)		
TW export growth <sub>t-1</sub>				-0.0010 (0.0007)	
TW IMF history					0.0239 (0.0354)
Constant	0.2706*** (0.0478)	0.2619*** (0.0517)	0.2718*** (0.0480)	0.2753*** (0.0481)	0.2679*** (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&lt;0.01, \*\* p&lt;0.05, \* p&lt;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 (trade-weighted per capita real GDP growth, international reserves and current account).



Table 10: Estimation results: additional institutional and political economy controls

VARIABLES	(1)	(2)	(3)	(4)	(5)
Own past HC,	-0.0074*** (0.0025)	-0.0074*** (0.0025)	-0.0075*** (0.0025)	-0.0080*** (0.0026)	-0.0074*** (0.0025)
TW past HC	0.0009 (0.0029)	0.0009 (0.0030)	0.0009 (0.0029)	0.0009 (0.0029)	0.0004 (0.0029)
UNGA vote <sub>t-1</sub>		-0.0002 (0.0009)			
Rule of Law index <sub>t-1</sub>			-0.0221 (0.0355)		
Log (IMF quota)				0.2040* (0.1056)	
Political Stability <sub>t-1</sub>					-0.0483* (0.0248)
Constant	0.1760*** (0.0320)	0.1841*** (0.0507)	0.1778*** (0.0325)	-0.8911 (0.5501)	0.1930*** (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&lt;0.01, \*\* p&lt;0.05, \* p&lt;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 (trade-weighted per capita real GDP growth, international reserves and current account).

Table 11: Baseline estimation results conditioning on crises' occurrence

VARIABLES	(1) Full sample	(2) Stop	(3) Flight	(4) Banking	(5) Currency	(6) CA deficit
Own past HC	-0.0084*** (0.0030)	-0.0128 (0.0149)	-0.0271 (0.0282)	-0.1838*** (0.0411)	-0.0779*** (0.0227)	-0.0097*** (0.0052)
TW past HC	0.0004 (0.0026)	-0.0235 (0.0231)	-0.0042 (0.0163)	-0.0249 (0.0351)	-0.0547* (0.0323)	0.0014 (0.0046)
Constant	0.2693*** (0.0474)	0.5661* (0.2891)	0.3236 (0.2235)	1.5467* (0.8437)	1.3006*** (0.3071)	0.2463*** (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&lt;0.01, \*\* p&lt;0.05, \* p&lt;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 (trade-weighted per capita 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 occurrences 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 12: Baseline estimation results by concessionality of arrangements

VARIABLES	Cross-effects included				Cross-effects excluded			
	(1) Non-conc.	(2) Conc.	(3) Non-conc.	(4) Conc.	(5) Non-conc.	(6) Conc.	(7) Non-conc.	(8) Conc.
Own past cond.	-0.0318*** (0.0056)	-0.0234*** (0.0039)			-0.0183*** (0.0064)	-0.0081 (0.0057)		
TW past cond.	-0.0111 (0.0072)	0.0034 (0.0038)			-0.0093 (0.0090)	0.0084* (0.0047)		
Own past HC			-0.0372*** (0.0116)	-0.0257*** (0.0078)			-0.0142* (0.0082)	-0.0039 (0.0089)
TW past HC			-0.0348** (0.0152)	0.0062 (0.0052)			-0.0211 (0.0185)	0.0061 (0.0088)
Constant	0.9324*** (0.1737)	0.8352*** (0.1436)	0.9351*** (0.1786)	0.7789*** (0.1465)	0.2045 (0.2069)	0.3926 (0.2570)	0.1506 (0.1794)	0.3642 (0.2674)
Observations	438	640	438	640	348	541	348	541
Number of reportercode	75	60	75	60	69	59	69	59
Adjusted R-squared	0.1759	0.2029	0.1162	0.1766	0.0618	0.1306	0.0379	0.1240
F-test	10.8858	20.6836	7.1564	23.0385	8.2578	9.9622	9.5933	11.2660
Prob>F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;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 (trade-weighted per capita real GDP growth, international reserves and current account). Columns (1) through (4) include conditionality associated to all arrangements of trade-partners, regardless of concessionality, while columns (5) through (8) exclude such cross-effects. For example, for a country entering a non-concessional arrangement in year  $t$ , excluding cross-effects implies calculating trade-weighted conditionality associated only to trade partners' non-concessional arrangements. See Table 2 for the various types of concessional and non-concessional arrangements. See Table 2 for the various types of concessional and non-concessional arrangements.

Table 13: Baseline estimation results by geographic region

VARIABLES	(1) Full sample	(2) Africa	(3) Americas	(4) Asia & Oceania	(5) Europe
Own past HC	-0.0084*** (0.0030)	-0.0131** (0.0061)	-0.0032 (0.0060)	-0.0084** (0.0031)	-0.0165*** (0.0048)
TW past HC	0.0004 (0.0026)	0.0058 (0.0064)	0.0003 (0.0061)	0.0034 (0.0049)	-0.0131* (0.0072)
Constant	0.2693*** (0.0474)	0.3406*** (0.0969)	0.1759** (0.0691)	0.3816*** (0.1058)	0.2599** (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&lt;0.01, \*\* p&lt;0.05, \* p&lt;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 (trade-weighted per capita real GDP growth, international reserves and current account).

Table 14: Baseline estimation results by level of development

VARIABLES	(1) Full sample	(2) ADV	(3) EME & DEV
Own past HC	-0.0084*** (0.0030)	0.0023 (0.0120)	-0.0083*** (0.0032)
TW past HC	0.0004 (0.0026)	-0.0024 (0.0084)	0.0003 (0.0028)
Constant	0.2693*** (0.0474)	0.1385** (0.0594)	0.3207*** (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&lt;0.01, \*\* p&lt;0.05, \* p&lt;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 (trade-weighted per capita 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 15: 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 (0.0060)	-0.0241** (0.0101)	-0.0122* (0.0061)	-0.0344*** (0.0065)	-0.0270 (0.0138)
TW past HC	0.0002 (0.0062)	-0.0170 (0.0153)	0.0081 (0.0079)	-0.0021 (0.0053)	-0.0833** (0.0294)
Constant	0.1929** (0.0712)	0.8280 (0.6364)	0.3997*** (0.1143)	0.3182** (0.1209)	0.1822 (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&lt;0.01, \*\* p&lt;0.05, \* p&lt;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 (trade-weighted per capita 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 16: Baseline estimation results by region: Advanced Economies

VARIABLES	(1) EA	(2) EU	(3) Other
Own past HC	0.0023 (0.0138)	-0.0125* (0.0066)	-0.0043 (0.0123)
TW past HC	0.0066 (0.0116)	0.0056 (0.0091)	-0.0187 (0.0130)
Constant	0.1447* (0.0775)	0.2392*** (0.0750)	0.0728 (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 (trade-weighted per capita 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

### 7 Details on the algorithm used to extract MONA data

This algorithm processes the MONA database, which is published on the IMF website in the form of Excel worksheets. The initial goal of the algorithm is to clearly establish the dates for the start and end of each programme, including for arrangements cancelled before initially scheduled. To this end, it is essential to identify the dates of each programme review. Subsequently, once programme start and end dates are identified, we proceed to annualising the dataset and describe how we obtain the measures of yearly conditionality and hard conditionality used in the study.<sup>27</sup>

#### A.1 MONA by Review

The Reviews worksheet available on the IMF website contains the dates for each of the programme reviews. For each programme review (PR) and financing assurances review (FAR), the worksheet contains originally scheduled date of review, revised date of review and date of review completion. The file also lists frequency of PR and FAR. Of relevance for the annualised MONA data set are the originally scheduled date of review and date of review completion. For this reason we discard observations where PRDate (originally scheduled date of review) is missing. Generally, where PRDate is missing, revised date of review (PRRevisedDate) and completed date of review (PRCompletedDate) are also missing.

The Reviews worksheet follows a structure where the information is repeated at subsequent reviews. For example, at ReviewType R0, the file lists all scheduled reviews of the arrangement. Take as an example the case of arrangement 570 (PRGF approved in 2006 for Afghanistan) at ReviewType R0. Next, we make use of the variable PRSequence: it lists the sequence of scheduled reviews (6 of them) and the corresponding scheduled date of review: R1 is scheduled to take place on January 31, 2007, R2 is scheduled for May 31, 2007, and so forth. At ReviewType R1, this info is repeated and updated where necessary: review R1 is marked as completed on March 7, 2007 and review R2 is rescheduled for June 30, 2007, instead of the originally planned May 31, 2007. What interests us in this structure is the originally scheduled date of review and the actual date of completion of the review, without undue repetition. To this end,

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<sup>27</sup>We describe in minute detail the steps taken in reshaping the database, though this level of thoroughness might only interest the research working with the dataset. For the reader more curious about our conditionality measure, please see section A.2 below.



we use the PRSequence variable to create a variable similar to ReviewType: where the program review sequence variable (PRSequence) equals “1st review”, we generate a new variable in numeric format (PRSequenceNum) equal to 1. The idea is to replace the variable ReviewType with values extracted from the variable PRSequence and avoid repeated observations.

We proceed accordingly for all arrangements in the Reviews file where the board action date is known. For this, we drop all variables except arrangement number, country code, arrangement type, board action date, program and review type. Dropping duplicates in this setting leaves us with a data set in which we have unique arrangement number – review type observations, for which also the board action date is known (the Board Action Date is the date of board approval of the review: for review type R0, for instance, that would be Board Approval, i.e. date of Board approval of the initial programme).

Next, we make use of the observation that the last review of each programme readily delivers the dates for each originally planned review, as well as their date of completion, if they were in fact completed. To keep only the observations corresponding to the last (or latest) programme review, we generate a numeric variant of the ReviewType variable and another variable containing the largest review (named maxSort). We then keep only the observations in the last programme review (when ReviewTypeNum is equal to maxSort). Alternatively, we could choose to keep only the observations where ReviewSequence equals “L” (indicating latest approved dataset) or “EL” (indicating that initial program approval is also latest dataset available). Combining these alternatives, we keep the latest review in each arrangement. The information extracted from PRSequence then becomes the basis for the ReviewType variable.

As for 3 arrangements some PRSequence observations are missing, after sorting the data by arrangement number, country code, arrangement type and date of programme review, we generate a new count variable for programme scheduled reviews (PRScheduledReviews). This corresponds exactly to the numerical review sequence extracted from PRSequence. It also helps filling the gap for the 3 arrangements (Greece – 680, Jamaica – 697 and Ukraine – 724) where the PRSequence is missing (replace the missing values of PRSequence with PRScheduledReviews). Next we drop ReviewType (since now it only contains the values of the latest review) and let the values in the PRSequence variable be the ReviewType variable.

We then merge the resulting data set with the previously created data set in which the data on the reviews is annualised. The date of review PRDate is the same as ApprovalDate for reviews of the type R0. The merging of the two data sets also ensures

that joint reviews have a date of completion, given by the BoardActionDate.

As regards the Archived Reviews file, we transformed the archived MONA Reviews worksheet to the extent that it has the same structure as the reviews file. This requires some more cleaning, e.g. replacing country names for “Congo, Democratic Republic of” and “Yemen”. Next, based on a clarification received from the IMF, we replace ArrangementNumber with 119 where ArrangementNumber is 126. Also based on a clarification received from the IMF, we set ReviewType equal to R0 where it reads OldBoardApproval. Furthermore, we drop observations where ReviewType is coded as “OC”, which stands for outcome. This “review type” was created to assess an arrangement at a later time, after the expiration of the arrangement. Not all arrangements in Archived MONA (numbers 1 through 434) have “OC” created or recorded. In some cases, the source document used in ReviewType “OC” is the same document used in the final programme review. According to the IMF “OC is not technically a review and therefore, not to be treated in the same way as R1, R2, ...R12, etc.”. For this reason, we drop the information for ReviewType “OC”. As all dates in the Archived MONA are of type string and in the format “MM/DD/YYYY” (or 2/16/2016), we write an algorithm such that it transforms them into type int and in %td format (ddmonyyyy, or 16feb2016), consistent with dates in the current MONA. Date values equal to 01jan1900 are replaced with missing values.

The next step consists of keeping only the sequence of observations from the latest programme review for which programme review dates and review completion dates are available. Note here that there are some duplicates in terms of arrangement number and programme review date (resulting from treating the Argentinean arrangements 119/126 as one arrangement). We drop those duplicates before following the transformation steps applied to the current MONA Reviews file, described above: sort by arrangement number (ArrangementNumber) and programme review date (PRDate); generate a counter by ArrangementNumber; use this counter variable to generate a variable equivalent to ReviewType. The assumption here (verified with the help of the ProgramReviewSequence variable in the Current MONA Reviews file) is that the programme review dates, sorted chronologically, correspond to sequential reviews. Lastly in transforming the ArchivedReviews file, we extract the year of Board Approval of review from the BoardDocumentNumber variable.

As a final step, we append the ArchivedReviews file to the current MONA Reviews file and, apart from arrangement identifier variables, we keep only relevant variables: originally scheduled programme review date and year (PRDate and PRYear), revised programme review date and year (PRRevisedDate and PRRevisedYear), as well as date

and year of programme review completion (PRCompletedDate and PRCompletedYear).

Then we clean the Description file available online to produce a file containing all arrangements in Archived and Current MONA. The resulting file keeps many of the variables originally present in the Description Excel worksheets, but combines archived and current MONA arrangements. The newly generated variables are:

- a numeric variable for ReviewType (R0 becomes 0);
- TotalAccess at review zero and at last review, to keep track of arrangements for which total access has changed throughout the programme;
- StartDate and EndDate for each arrangement, taking into account information given by the following variables: ApprovalDate, InitialEndDate, DurationofAnnualArrangementFrom and DurationofAnnualArrangementTo, as well as information revealed by the Cancelled variable. The Start/EndDate variables aim to provide accurate dates for the start and end of each arrangement. In some cases, the year of the review, extracted from the BoardActionYear variable in current MONA or BoardDocumentNumber for Archived MONA, comes into use, when information about the year of review is otherwise difficult to pin down.
- A dummy for concessionality, Concessional, to signal which programmes are financed from the General Resource Account and which from the Poverty Reduction and Growth Fund.

Some variables of secondary importance are dropped (such as Setaside, Publetterofinttentcode, Pubstaffreport and ConditionalityTextBoxincluded).

In cleaning the Purchases excel file we extract from the Current and Archived MONA Purchases Excel worksheets information about the originally scheduled amounts to be disbursed and the amounts actually disbursed, by review and by arrangement-year respectively. The structure of the Purchases file is such that at Board approval, the file contains a column called OriginalBasis, which lists the basis for the purchase of disbursement schedule, with the accompanying timeline of disbursements in the OriginalScheduledDate column, and the corresponding amounts, in column OriginalScheduledAmount. For an arrangement scheduled to benefit from 4 reviews, the OriginalBasis column will initially contain 5 lines, ranging from Board Approval, to Completion of 4th review. The number of lines may be larger than 5 if the disbursement is dependent on the Observance of performance criteria (the OriginalBasis column will specify if this is the case).

At first review (R1), the e.g. 5 lines above will be copied again. At this time, the columns RevisedScheduledDate, RevisedScheduledAmount and RevisedBasis will be

updated accordingly. The columns `ActualDate`, `ActualAmount` and `ActualBasis` are also updated on a rolling basis. This happens at each subsequent review (at R2, 5 more lines will be added, repeating the information above, or updating it, where relevant. Similarly at R3 and R4, for this particular example). At R4, then, all the columns (Original, Revised and Actual for Date, Amount and Basis), will have been updated. To avoid having this information concentrated at the last Review (MaxSort in the Database) and instead having it readily available at each review, the cleaning of the Purchases file creates a matrix-like structure, where ReviewType R1, for instance, will correspond to `OriginalBasis = "Completion of 1st review"`. In this way, `OriginalBasis = "Completion of 1st review"` will appear in the file only once, instead of being repeated at R0, R2, R3 and R4. So, using the information given by the `OriginalBasis` variable at the last review, we are able to surpass the repeating structure of this worksheet and rely on the last iteration (at last review) of the variable `OriginalBasis` to extract the dates and amounts planned to be disbursed at each review (or by arrangement-year, for MONA by Arrangement). A similar logic is applied for the actual amounts disbursed, using the `ActualBasis` variable. This structure also allows us keep the dates for the originally planned disbursement and the dates of the actual disbursements.

Note the presence of the variables `Original_PC` and `Actual_PC` in the resulting file. These two `*_PC` variables indicate that disbursements were conditional on the completion of performance criteria (PC) at least at one of the reviews. This is important if one attempts to compare the originally scheduled amount by arrangement with the sum over all reviews of the originally scheduled amount. In cases when the `*_PC` variable is equal to 1, those two sums will not coincide and the date file does not contain the sums disbursed after the completion of the PCs, instead this Stata file only contains the two `*_PC` variables to flag that a particular arrangement's disbursement – either originally scheduled or actual disbursement – was conditional on the completion of performance criteria, and the sum associated to this can be found in the original files.

By contrast, the transformed purchases file contains several calculated variables: `Original_sum_arr`, `Actual_sum_arr`, `*_sum_arr_year` and `*_sum_YEAR`. These are, respectively, the originally scheduled (or actually disbursed) sums by arrangement, by arrangement-year and by country-year.

## A.2 Conditionality in annualised MONA

With regard to treating conditionality in MONA, our goal is to present an overview of the main conditions by economic area and completion status. To that end, we used the Key-

Code variable in the original excel files to generate a host of other six variables (IT, PA, QPC, SAC, SB and SPC) for each of the condition types listed in the KeyCode variable. Next, for each of these, we create a new variable \*\_sumAll which gives the total number of conditions of that type by review (for example, looking at arrangement SBA-600 at R2, if SB\_sumAll is equal to 7, that means that there are 7 structural benchmarks set forth to be completed at the time of the programme approval). Furthermore, the actual variable SB, for instance, lists the possible economic areas to which the structural benchmarks correspond, and together with the variable SB\_countArea, we learn from these two variables how many SBs are associated to which economic sector. For instance, returning to the example above taken from R0 of arrangement 600, where SB\_countAll was equal to 7: from SB + SB\_countArea, we learn that 6 of the 7 conditions correspond to the FIN area, while 1 corresponds to the GOV economic area. Similarly, for all arrangements in Current MONA, variables SB\_Status and SB\_StatusCount together provide information on the status of each of the conditions in the KeyCode variable. Reverting to the above example, of the 7 SBs in R2 of arrangement 600, 4 were met (M), 1 was modified (MOD) and 2 remained outstanding (OUT), or continued to be listed as a SB to be completed in the following review.

To calculate total conditionality, we first replicate the "Other criteria - Indicative Targets" table at the IMF website. We then use the MONA files containing QPCs and ITs, as well as the "Combined" conditionality file to create a row-identifier, based on all variables that define a condition. This exploits, in particular, the Description variables in each file. The idea is to exploit the repetitive structure of the data for deleting duplicates: if a condition has all the same identifiers, the more general ones (as EconomicCode or EconomicDescriptor), while in addition shares the very specific information included in the Description variable, that condition is considered repeated from one review to the next. In particular, the Description variable allows us to identify each of the unique conditions. Before deleting the duplicates, we generate two variables which indicate at which review a condition was introduced (count the number of times a given condition appears and take minimum to get the review at which the condition was first introduced) as well a variable indicating at which review a given condition was met, partially met or met with delay (though Status variable is only available for current MONA). The idea is just to keep track of the conditions that are met before the last review, and lastly, allow Status variable to reflect the status of the condition at the last review (for that, we keep each condition at the last review it appears (count the number of times a given condition appears and keep the rows where the count variable equals the maximum, this way ensuring that there are no duplicates, each condition appears only once, at

the last review available). The Archived MONA "archspcpasb" file is treated in the same manner, after a bit more homogenising to fit the current MONA. After removing duplicates, we sum the number of conditions on several dimensions: by arrangement, per arrangement and year, per country and year, and so on for conditionality type and Status of completion of conditions. Similarly, we sum QPCs, SPCs and PAs to get hard conditionality at the desired level.

In the attached dataset, and in this study, we make use of conditionality at the country-year level. This will be identical to conditionality at the arrangement-year level for countries which have only one programme running in a given year, but not for those countries which have two active IMF arrangements in a given year.

A list of the categories of each of the conditionality variables is detailed in Table 4.

Table A.1: Definitions of variables used in this study

Variable Name	Definition	Type	Source	Notes	Range
Arrangement start	1 if arrangement signed in year t	Dummy	MONA		1992-2016
Per capita GDP growth	Real GDP per capita, constant 2005 US\$	%	WEO		1992-2014
Reserves	Total reserves in months of imports	Months	WEO		1992-2014
Current Account	Current account balance, Percent of GDP	%	WEO		1992-2014
Own IMF history	1 if country has had at least one program in the previous 5 years	Dummy	MONA		1992-2016
Neighbour share	Share of countries with a programme in year t	%	MONA		1992-2016
Own past conditionality	Total number of conditions (5-year moving average)	Integer	MONA		1992-2016
Own past hard conditionality	Total number of hard conditions (5-year moving average)	Integer	MONA		1992-2016
Gross fixed K formation	Gross fixed capital formation, % GDP	%	WEO		1992-2014
REER	Real effective exchange rate	Index	IMF INS		1992-2014
REER overvaluation	Real effective exchange rate overvaluation	%	IMF INS		1992-2014
Central government FB	Central government fiscal balance, % GDP	%	WEO		1992-2014
Trade openness	Trade openness, % GDP	%	WEO		1992-2014
GFSN access	Global Financial Safety Net index: actual access, cardinal	Index	GFSN database		1992-2014
UNGA vote	Percentage of UN General Assembly votes in which the country agrees with the US	%	US State Department		2000-2014
Rule of Law	Rule of Law Index	Index	WDI		1996-2013
IMF quota	IMF quota	SDR million	IMF		1992-2016
Political Stability	Political stability index	Index	WDI		1996-2013
TT growth	Terms of trade growth	%	WEO		1992-2014
Export growth	Value growth of total exports of goods and services	%	WEO		1992-2014