Risk and Responsibility: Climate Vulnerability and IMF Conditionality

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Abstract

International Monetary Fund (IMF) loans often require states to implement stringent policy conditions for funds to be disbursed. However, many recipients are highly vulnerable to the effects of climate change, which can limit their ability to implement such conditions. This problem is exacerbated by the fact that many developing countries are especially climate vulnerable. We examine whether and how the IMF accounts for the burden posed by states' climate vulnerabilities when designing loan programs. We show that the Fund balances moral hazard and climate justice considerations by offering vulnerable countries loans with fewer and less stringent policy conditions. Mechanism tests suggest this effect is driven by bureaucrats learning about the vulnerability-inducing threat of climate rather than the initiative of management or member states. These findings highlight the subtle responsiveness of international financial institutions to countries' climate vulnerabilities and illustrate how climate change influences international economic policymaking processes.

Keywords: climate; conditionality; international organizations; IMF

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Introduction

Climate vulnerable countries increasingly exert pressure on international financial institutions (IFIs) to mobilize resources to combat the climate crisis. The Bridgetown Initiative, spearheaded by Barbadian Prime Minister Mia Mottley, is indicative of this trend; Mottley, in coalition with leaders of several low-lying island nations, has called for the World Bank and International Monetary Fund (IMF) to significantly revamp their lending activities.

The Initiative has specifically demanded that the G-20 countries contribute an additional $100 billion per year to IFIs to fund climate finance; called for an expansion of the lending capacity of the World Bank; asked the IMF to relax access limits to concessional finance through the institution's Resilience and Sustainability Trust; and pushed for these institutions to redistribute voting shares away from rich nations in the Global North in favor of more "inclusive and equitable" governance.[1] The World Bank estimates that total financing needed to tackle climate shocks through 2030 exceeds $2.4 trillion per year.[2] The severity of the looming crisis has led IMF Managing Director Kristalina Georgieva to call for a "new Bretton Woods moment,"[3] equating the challenge to the erection of the IMF and World Bank in the wake of the Second World War.

However, IFIs have been slow to meet the demands of climate vulnerable states. The World Bank has been hesitant to expand lending, expressing concern that doing so might threaten its AAA credit rating and, in turn, increase borrowing costs for recipients.[4] The IMF, meanwhile, faces resistance from member states at the Executive Board, the institution's highest decision-making body; many Executive Directors believe climate falls outside the Fund's purview.[5] Status quo bias and institutional inertia often undermine efforts to reform these institutions (Wallander 2000; Page 2006; Carnegie and Clark 2023). Moreover, vote share reforms have been more bark than bite, with the U.S. retaining a veto in each of the Bretton Woods organizations and developing and middle-income countries remaining underrepresented relative to their economic might (Kaya

[1] *Reuters*, 2023, https://bit.ly/3Pe6mLO; *Foreign Affairs*, 2023, https://bit.ly/3v9d3ry
[2] *Carnegie Endowment for International Peace*, 2023, https://bit.ly/3VeqMIn
[3] *IMF*, 2020, https://bit.ly/3TuHr94
[4] *Reuters*, 2023, https://bit.ly/3VejaFu
[5] Interview with former department head at IMF, performed by authors in September 2021.

2015; Pratt 2021).

This apparent inaction on climate begs the question: How are IFIs tackling the mounting climate crisis, if at all? We argue that IFIs are working to assist climate vulnerable countries in subtle ways to circumvent donor states' objections and avoid altering institutional mandates. In particular, we contend that staff in these institutions reduce the stringency of loan conditions when states experience losses and damages from climate disasters.

Such realized climate risks are apparent to staff working in these countries; bureaucrats are often deployed on mission teams to negotiate terms with policy officials. Staff may experience climate disasters or their aftermath when sent abroad, learn about the severity of climate risks as they interact with policy officials, or hear discussions about climate in the public zeitgeist (see Clark and Zucker 2023). In recognition of such countries' climate vulnerability, we argue that staff design loan programs that are less cumbersome for them to implement. While states may interject to lessen the stringency of conditions demanded of allies and strategically important states (Stone 2011; Dreher, Sturm and Vreeland 2015), staff are typically afforded significant discretion when designing conditional loan programs (Clark and Dolan 2021). They can exercise this discretion to ease the burden placed on climate vulnerable clients.

Why would bureaucrats take such steps to reduce the burden of conditionality for climate vulnerable states? We argue that placing burdensome demands on climate vulnerable countries may seem unjust to IFI staffers, especially those that are themselves climate-concerned. Notably, recent work suggests that many rank-and-file IMF bureaucrats are worried about climate change and believe it to be germane to the Fund's mandate, whether as a result of their lived experiences (Clark and Zucker 2023) or the influence of recent Managing Directors Christine Lagarde and Kristalina Georgieva, who have themselves taken a strong interest in climate change (Copelovitch and Rickard 2021). Climate justice concerns may thus pervade the thinking of some of the Fund's bureaucrats and drive them to cut breaks to vulnerable states. As such, our theory expects IFI staff to design loan programs that limit the strain of conditionality demanded of countries experiencing frequent climate disasters.

We test our argument in the context of the IMF as one of the largest and most consequential IFIs. The Fund has also been subject to some of the loudest criticism from climate vulnerable communities, as highlighted above, and is thus an appropriate place to look for staff influence over climate policy. Moreover, the IMF almost exclusively administers conditional loans, giving it significant influence in international politics. Lastly, studying the Fund allows us to speak to the large literature interested in its policymaking and performance (see e.g., Stone 2008; Copelovitch 2010*b*; Chwieroth 2015; Nelson 2017).

We specifically join data on the number and content of IMF loan conditions (Kentikelenis, Stubbs and King 2016) with data on the damage states have incurred from climate disasters.[6] We first show that when countries are hit hard by climate disasters, they receive fewer conditions from the IMF. We also show that such patterns are mirrored in conditional lending at the World Bank, suggesting that our core findings are generalizable; we discuss generalizability further in the conclusion. We also probe mechanisms, finding that staff interest in climate drives our results rather than the desires of management or member states. We further pioneer a novel latent semantic scaling measure that relies on the language used in the text of loan conditions to evaluate their stringency, finding similar results. We believe this method will be of use to an array of scholars interested in IFI conditionality.

This research builds on recent work positing a role for staff influence in driving IFIs' pivots to climate change (Clark and Zucker 2023; Goes and Chapman 2024), as well as a growing literature interested in bureaucratic influence in international relations more generally (Carcelli 2023; Jost 2023; Thrall 2024). A large literature recognizes the importance of IO staff as agents of change in global governance; individual staff have been shown to affect the performance of loan programs in IFIs, the content of their research, the economic policies they advance, and even the shape of new international institutions (Weaver 2008; Johnson 2014; Chwieroth 2013; Cormier and Manger 2022; Heinzel and Liese 2021; Heinzel 2022; Heinzel, Weaver and Jorgensen 2024; Lang, Kentikelenis and Wellner 2024). We extend this literature by showing how IO staff can respond to

[6]Climate disaster data comes from EM-DAT. We specifically examine the number of individuals affected by climatological, hydrological, and meteorological disasters.

calls for IFIs to take action on climate change in subtle yet impactful ways, with implications for climate justice and organizational efficacy.

IFIs and Climate Change

International financial institutions' provision of climate finance is often described as uneven and insufficient despite immense needs among climate vulnerable states.[7] The vast majority of climate finance from IFIs comes from trust funds (see Eichenauer and Reinsberg 2017 for an overview). Such funds are earmarked for mitigation and adaptation by donors and exist separately from organizations' core budgets. For example, the Clean Technology Fund is housed at the World Bank, and the Adaptation Fund for Smallholder Agriculture is housed at the International Fund for Agricultural Development.[8] These trusts are typically funded by voluntary contributions from member states, which allows such states to make explicit demands on how contributions are spent (Graham and Serdaru 2020). This, in turn, limits bureaucratic influence, which may diminish program effectiveness (Honig 2018) and result in disbursement hewing more closely to geopolitical imperatives than member states' needs.[9]

Indeed, existing work highlights IFIs' mixed performance on climate. For instance, the World Bank pledged in 2013 to stop funding coal projects, and the institution has committed to helping countries make progress on their commitments under the Paris Agreement. However, several environmental NGOs published a report in 2023 revealing that the Bank continues to finance some of Asia's largest coal projects, primarily via the International Finance Corporation.[10] Moreover, foreign aid is often fungible, enabling governments to invest in their priorities even when they are at odds with IFIs' goals (Ahmed 2012; Bermeo 2016). IFIs can thus indirectly finance carbon-intensive projects even when they try not to do so.

[7] See *NRDC*, 2023, https://bit.ly/4cIyYHa.

[8] See Keohane and Victor (2011); Pickering and Skavgaard (2017) for a more comprehensive discussion of the climate finance regime complex.

[9] See Bermeo (2017) on aid allocation.

[10] *Inclusive Finance International*, 2023, https://bit.ly/3xiPhKq.

More generally, donors and recipient states often disagree about how climate finance ought to be spent. This is a central point of frustration for recipient governments given high levels of donor control over climate finance. Donors, for their part, often prefer mitigation projects (e.g., green energy investments), which can generate returns on investments and benefit donors indirectly by reducing global emissions (Graham and Thompson 2015). Recipients, meanwhile, often favor funding for adaptation, which helps to insulate vulnerable populations from the worst effects of climate change (e.g., through the erection of seawalls). The benefits from adaptation are highly localized (Pickering et al. 2015). The scarcity of climate finance dedicated to adaptation is at the heart of recent movements spearheaded by vulnerable countries like Barbados that seek to greatly improve countries' access to such funds.

For all these reasons, explicitly allocating funds to address climate-related issues in IFIs is extremely challenging. But this does not imply wholesale inaction from IFIs on climate. We focus on bureaucratic discretion as a subtle avenue by which IFI lending takes climate vulnerability into account.

IFI Bureaucrats and Conditionality

As IFIs increasingly feel pressure from countries vulnerable to climate change, the bureaucrats that staff these institutions must strike a delicate balance. Such staff often wish to meet the demands of climate vulnerable countries, both to retain such states' participation and because they themselves may be concerned about climate change. However, IFI bureaucrats must also prioritize the interests of the powerful member states, like the U.S. and G-5, that dominate these institutions and provide the vast majority of their financing; the states most vulnerable to climate change, by contrast, tend to be developing and middle-income countries that possess relatively little formal and informal influence in IOs.

In general, institutions like the IMF crucially rely on member state participation for relevance, legitimacy, and financial security (Broz 2008; Gray 2018; Tallberg and Zürn 2019). The Fund

makes money on the interest payments made on their loans, lessening the importance of member state contributions.[11] Engaged country participation in meetings and loan programs bolsters the vitality of IOs and is essential to their functioning (Keohane 1984; Gray 2018; Carnegie, Clark and Kaya 2024). While the Fund historically possessed a monopoly over emergency lending as the global lender-of-last-resort (Henning 2011), the IMF increasingly competes with a dizzying array of lenders, including regional IFIs (Pratt 2021; Clark 2022) and bilateral lenders like the U.S. and China (McDowell 2016; Bunte 2019; Zeitz 2020). Such competition increases pressure on staff to ensure member states are satisfied and can lead them to make concessions to members (Lipscy 2015), often in the form of less stringent conditionality (Carnegie and Clark 2023).

The climate regime complex, in particular, is highly fragmented (Keohane and Victor 2011; Eichenauer and Reinsberg 2017), offering countries opportunities to shop across institutions for climate finance. Institutional overlap in this space has become exacerbated in recent years as more IFIs focus their rhetoric and policymaking on climate change. The IMF is the latest entrant into this space; the Fund launched the Resilience and Sustainability Trust in 2023 in a marked shift away from its conventional focus on short-term balance of payments crises.

These institutions' pivots to climate are driven at least in part by the efforts of rank-and-file bureaucrats. A wave of recent scholarship places a spotlight on bureaucrats in IOs and foreign policy bureaucracies (Johnson 2014; Cormier and Manger 2022; Carcelli 2023; Jost 2023). In IFIs, such bureaucrats can leverage agency slack to impact the design and performance of loan programs (Heinzel and Liese 2021; Heinzel 2022; Heinzel, Weaver and Jorgensen 2024; Lang, Kentikelenis and Wellner 2024). Clark and Zucker (2023) show that when IMF bureaucrats spend time in climate vulnerable countries, they come to identify climate as relevant to institutional mandates and emphasize it in research and surveillance reports. Notably, bureaucrats' research outputs have been identified as leading indicators of changes to IFIs' lending operations (Cormier and Manger 2022).

We build on this literature, arguing that bureaucrats exercise their discretion in IFIs to award

[11] Member state funding can be contentious, especially amidst the contemporary backlash to IOs (Copelovitch and Pevehouse 2019; Brutger and Clark 2022).

less stringent conditionality to climate vulnerable countries. Bureaucrats in IFIs have significant leeway over the design of conditional loan programs (Lang, Kentikelenis and Wellner 2024). While powerful member states may intervene in program design to award breaks to allies and geopolitically important states (Dreher 2006; Stone 2008), they do so selectively to preserve institutional legitimacy (Stone 2011).[12] Powerful states' efforts to shape the work of IFIs are most effective when such states' preferences are homogeneous and intense (Copelovitch 2010*b*,*a*). The leading shareholders in the Bretton Woods IOs, including China, France, Germany, Japan, and the U.S., have exhibited mixed preferences and varying levels of policy commitment to combating climate change. This preference heterogeneity among powerful member states implies that bureaucrats may have some freedom when it comes to addressing climate issues, while member states may be less able to influence climate policymaking at the Fund.

Bureaucrats may also be responsive to institutional managers as organizational agenda-setters (Schroeder 2014). At the IMF, the last two Managing Directors — Christine Lagarde and Kristalina Georgieva — have used their platforms to push IFIs to devote additional resources to climate change. Similarly, World Bank President Ajay Banga has promised to hasten the Bank's efforts to combat climate change and address environmental degradation in stark contrast to his predecessor, Trump appointee David Malpass. Such leaders' policy priorities and political leanings have been shown to affect the work of their institutions; (Copelovitch and Rickard 2021) specifically show that when the IMF Managing Director holds left-leaning political views, the Fund attaches fewer conditions mandating labor market reforms. In this same vein, managerial attention to climate may shape the work of staff from the top-down.

Building on this literature, we anticipate that bureaucrats in the IMF award less stringent conditionality to countries suffering from severe climate vulnerability. We believe they do so of their own volition (i.e., because they are concerned about climate change) rather than in response to member states' directives. Interviews with current and former Executive Directors at the IMF bolster this claim — insiders assert that the Board remains unconvinced that climate change falls under

[12]Even when loan programs reflect the preferences of powerful countries, staff rather than states may be the driving force (Clark and Dolan 2021).

the institution's purview, and their focus remains on more immediate macroeconomic threats.[13] In subsequent empirical tests, we account for the influence of powerful states and attempt to disentangle staff versus managerial influence, finding relatively more evidence for staff influence.

While the IMF is often accused of taking a one-size-fits-all approach to conditionality — favoring neoliberal policy reforms (Li, Sy and McMurray 2015) — existing research suggests staff can be responsive to the needs and constraints of recipient countries. For example, the Fund sometimes awards breaks to countries before elections (Vreeland 2005). Similarly, the IMF is responsive to the domestic political situation in recipient states (e.g., whether the government is left- or right-leaning, see Caraway, Rickard and Anner 2012). Loan conditions are cumbersome to implement and can place significant strain on recipient governments, especially when they come from the IMF (Kentikelenis, Stubbs and King 2016; Lang 2021). For these reasons, recipient countries exercise what leverage they have to bargain down the stringency of IMF conditions (Clark 2022).

We specifically contend that IMF bureaucrats reduce the number and stringency of conditions placed on countries when they suffer from severe climate disasters. We focus on disasters rather than underlying climate vulnerability since the latter may not be apparent to IMF bureaucrats focused on immediate macroeconomic threats. Latent vulnerability is slow moving; the same countries remain highly vulnerable over time. In contrast, severe climate disasters affect many citizens and inflict a substantial economic toll — they are thus highly visible indicators of a country's climate vulnerability. Bureaucrats are likely to notice when countries experience such severe climate disasters, whether because they often must travel to recipient states to negotiate with domestic policy officials and oversee implementation, or as they monitor salient issues in the state's news media and public zeitgeist. Scholarship suggests that field agents can learn from their experiences abroad (Howard 2008; Campbell 2008; Howard and Sylvan 2015; Honig 2018), including when it comes to climate disasters (Clark and Zucker 2023).

Bureaucrats may offer breaks on conditionality in recognition that the Fund ought to do more to assist such states. We expect these predictions to generalize to other IFIs, and we show that

[13] Interviews with current and former IMF officials performed by authors in September 2021.

our findings extend to the World Bank in a robustness check. While IFIs may award climate vulnerable states other benefits, such as more loans, larger financing packages, or added voice in these institutions, we focus on the stringency of conditionality.

Hypothesis 1. *Countries suffering from more severe climate disasters receive less stringent conditionality packages from IFIs.*

An alternative explanation is that staff grant disaster-prone countries breaks on conditions because such countries' capacity to implement reforms (e.g., privatization and economic liberalization) is hindered by climate disasters; domestic officials may be spread thin trying to pursue climate adaptation and relief measures. IMF conditions are stringent and can generate additional costs for governments, especially in the short-term, including increased unemployment, reduced wages, and increased inequality (Vreeland 2005; Caraway, Rickard and Anner 2012; Lang 2021). Staff have incentives to design loans that induce structural changes but also wish to smooth disbursement (Weaver 2008), which is contingent on states meeting conditions, and maximize the likelihood of successful repayment. However, if staff are responsive to capacity constraints, they should reduce the stringency of conditions for countries experiencing *any* disaster, not just those related to climate change. In order to tease out the precise mechanism, we thus conduct a placebo test comparing the impact of climate disasters to that wrought by earthquakes below.

Measuring Climate Conditionality

For our first set of tests, our main dependent variable is the number of conditions included in IMF loans to that country in a given year. We draw on data from Kentikelenis, Stubbs and King (2016); Kentikelenis and Stubbs (2023), which covers all country years from 1980-2019 in which a state received an IMF loan and provides additional information about the policy areas covered by each condition. For our robustness test at the World Bank, commensurate conditionality data comes from Clark and Dolan (2021) covering the period 2005-2018.[14] The count measure captures

[14]We specifically examine Development Policy Financing (DPF) loans from the World Bank. DPF succeeded Structural Adjustment Lending (SAL) as of FY2005. See Clark and Dolan (2021, 40).

the stringency demanded by loan agreements and is widely used in the literature (e.g., Copelovitch 2010*a*; Stone 2011; Kentikelenis, Stubbs and King 2016). However, in additional tests, which we describe subsequently, we probe alternate measures of the difficulty and scope of loan conditions in recognition of the limitations of the count measure.[15]

Our key independent variable of interest is a measure of climate disaster impact, in line with our theory of realized climate risks. Unlike other measures of climate vulnerability, climate disasters constitute a highly visible signal of the effects of climate change that states are experiencing and are therefore likely to be legible to staff as they design loans. We construct this measure using the International Disasters Database (EM-DAT). These data include climatological (droughts and wildfires), hydrological (floods), and meteorological (extreme temperatures and storms) disasters from 1999-2023 (see also Arias 2022). To construct our measure of disaster impact, we calculate the population share affected by disasters at the country-year level, centered and rescaled by the standard deviation, and lagged by one year. The more individuals that are affected by a climate disaster, the more visible said disaster should be to the Fund's bureaucrats.

In some specifications, we also include control measures motivated by existing literature on IFI conditionality. These include political measures—V-Dem democracy scores and whether a state is a member of the United Nations Security Council, and UN voting distance from the US (Bailey, Strezhnev and Voeten 2017)—and economic measures—the log of GDP per capita, trade as a share of GDP, foreign direct investment as a share of GDP, debt as a share of GNI, debt service as a share of exports, and the log of official development assistance (ODA) as a share of GNI. These factors could affect the stringency of conditional lending independently of climate vulnerability in a variety of ways. For example, states with more robust democratic systems have been shown to receive more stringent loan conditions because they are less likely to be overturned (Vreeland 2003).[16] All independent variables are lagged by one year to account for possible endogeneity and the temporal gap between when a country applies for assistance from IFIs and when loan terms are

[15]The count weights each condition equally, which can be problematic since the stringency of individual conditions varies widely.

[16]See Appendix §1 for more information on variable sources and §2 for summary statistics.

agreed upon.

In our main models including the full set of covariates, we impute missing covariate data with multiple imputation following existing work on policymaking in IFIs (see Schneider and Tobin 2020; Clark 2022).[17] Doing so is necessary since control variables can exhibit high levels of missingness for developing countries (Lall 2016); failing to impute would leave a disproportionate number of advanced democracies — countries that take relatively few loans from IFIs. However, for robustness, we drop observations with missing data and obtain similar results, as we discuss subsequently.

Our main estimations are linear regression models with fixed effects at the country and year levels to capture unobserved heterogeneity between countries and years, and standard errors are clustered at the country- and year- levels to account for uncertainty within countries and years. In subsequent sections, we also show that the results are robust to a host of additional specifications.

Number of Conditions

Results from our baseline tests appear in Table 1, including both the bivariate results and estimates with covariates included. Our results show support for our key theoretical expectation: countries that are vulnerable to the extreme and highly visible effects of climate change obtain fewer loan conditions. These results are statistically significant in both the bivariate analysis and the model with controls. A one standard deviation increase in climate disaster severity corresponds to a decrease of approximately 1.3 conditions (an average loan document in our data consists of 4.58 conditions; this result therefore represents a 28% decrease in the number of conditions in an average IMF loan). This result is thus substantively striking in the extent to which it reflects a lessening of the burden of conditionality.[18] While other features—such as UNSC membership—also

[17] We employ multivariate imputation by chained equations (MICE) over 3 imputations (Van Buuren and Groothuis-Oudshoorn 2011). Patterns of variable missingness are illustrated in Figure A1, showing no large-scale missingness that is correlated with wealth, population, or regime type. Missingness is highest for our economic control variables.

[18] For comparison, Clark (2022) shows an effect of a similar magnitude when countries have access to outside options and can bargain over the terms of IMF lending.

correlate with less burdensome loans, even after controlling for political and structural economic features, realized climate vulnerability has an independent effect on loan stringency.

Table 1: Predicting Number of Conditions

Model:	(1)	(2)
Variables		
Climate Disasters	-1.33***	-1.27***
	(0.338)	(0.321)
Polyarchy		-1.63
		(2.39)
UNSC Member		-1.08*
		(0.563)
GDPPC (log)		-0.486
		(2.09)
Trade/GDP		-0.005
		(0.009)
FDI/GDP		-0.002
		(0.010)
Debt/GNI		0.002
		(0.005)
Debt service/exports		-0.013*
		(0.007)
ODA/GNI (log)		-0.544
		(0.558)
US Ideal Point Diff.		-0.411
		(0.539)
Fixed-effects		
Year	Yes	Yes
Country	Yes	Yes
Fit statistics		
Observations	564	564
R^2	0.392	0.398

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Robustness

To increase confidence in our main results, we conduct a variety of robustness tests further probing the relationship between climate vulnerability and the number of conditions included in loans. Robustness tests are universally consistent with our core findings, and relevant results appear in the Appendix.

First, we examine another major IFI — the World Bank — as an external validity probe to validate the generalizability of our expectations outside of the IMF. We show that in World Bank loans (Table A3), climate disaster severity has a statistically significant relationship with the count of conditions and in the expected direction, though the substantive impact of the effects of such disasters is of a lesser magnitude. This difference may stem from the fact that the Bank's conditions are easier on average to implement (Clark and Dolan 2021). The relative softness of World Bank conditionality may lead bureaucrats to feel less imperative to ease the burden placed on climate vulnerable states. It is also possible that since the World Bank has gone to greater lengths than the IMF to mainstream climate finance into its core operations, bureaucrats need not leverage subtle mechanisms to benefit vulnerable countries to the same extent. Still, the statistical significance of our results across the Bretton Woods IOs suggests our theory should apply to cases of conditional lending outside of the IMF.

Next, we implement several changes to the specification of our main statistical model. First, we utilize listwise deletion rather than imputation for observations with missing data (Table A4). Results are robust both directionally and with significance. Second, we show that results are robust when we swap year fixed effects for linear and squared time trends (Table A5). This is important in the IMF context given the increase in the number of conditions attached to loans over time (Vaubel 1991), as well as countries' increased climate vulnerability over time. An illustrative plot of time trends in the conditionality and disaster measures appears in Figure A2; notably, there is no clear time trend in either measure during the years under study.

Third, we utilize negative binomial models in place of OLS to address overdispersion in our dependent variable. While we prefer OLS for ease of interpretation, negative binomial models are

often used in the conditionality literature. The results are again robust (Table A6). Fourth, we also show that our results hold when we remove conditions that were ultimately waived by the IMF from the data; this allows us to examine only conditions that were ultimately enforced. Results are even stronger in magnitude in this case (Table A7).

We also utilize an instrumental variables approach to account for selection into conditional loan programs at the IMF. We do so following recent literature that utilizes an interaction between the Fund's budget constraint and a country's general propensity to take IMF loans as an instrument to predict IMF program participation (Stubbs and Kentikelenis 2018; Lang 2021) and find that our results hold (Tables A9 and A10). More details on the IV approach can be found in the Appendix.

In addition, we examine whether there are heterogeneous effects across types of climate disasters. Our mechanism may be most applicable to fast onset disasters (e.g., flash floods or hurricanes) that are highly visible and thus likely salient to IO staff rather than those that slowly accumulate over time (e.g., droughts) and might be more easily overlooked by bureaucrats. Table A11 provides evidence consistent with this assertion: the results are more stable and statistically significant with or without controls included for fast-onset disasters. Such evidence provides further support for our posited mechanism.

Next, in another attempt to address endogeneity concerns and isolate the impact of climate disasters on conditionality, we use PanelMatch (Imai, Kim and Wang 2023). Our treatment variable in this analysis is a binary equal to one if a country experiences at least one climate disaster in a given year. PanelMatch is advantageous because, in addition to matching on observables, it matches treated units with control units in the same time period that have identical preceding treatment history. Results with this method can be found in Appendix Figures A3–A4, and they again align with our expectations. Notably, we only observe a significant effect of climate disasters on conditionality in the year after a disaster occurs (time t=0 in the plots since we lag disaster incidence by one year). The effect rapidly wanes in the following two years. This suggests bureaucrats only cut countries breaks when climate disasters are salient (i.e., immediately after they occur) — again in accordance with our posited mechanism.

Finally, as discussed previously, we conduct a placebo test to validate that bureaucrats respond specifically to climate disasters in constructing loans, rather than responding to the occurrence of disasters generally. An alternative explanation for our findings is that staff grant breaks to countries experiencing any sort of hardship, including those not related to climate change. We thus replace our measure of climate disasters with an identically constructed measure that captures the share of the population affected by geophysical disasters from the EM-DAT dataset (e.g., earthquakes, dry mass movements, and volcanic activity), which are not driven by the effects of climate change but can still cause devastating economic and human impacts. We show that the number of individuals affected by geophysical disasters has no relationship with loan conditionality, as we would expect (Table A12). Staff at the IMF are thus responding to climate disasters in particular, which suggests they are uniquely concerned about climate-related issues.

The Language of Conditionality

Our main specifications rely on counts of the number of conditions attached to loans to proxy the stringency of such loan conditions. While widely used in the literature, the count measure is imperfect — for instance, it assigns equal weight to every condition though one condition may mandate that a report be written and another might ask for several state-owned enterprises to be sold off. Therefore, we conduct additional tests to further probe the stringency of loan conditions and ensure our results are not driven by the construction of the count measure alone.

First, we consider the scope of the conditions included in a given loan document (see Stone 2008), which measures the number of policy categories covered by loan conditions. We specifically swap our count of conditions dependent variable for an alternate measure that captures the number of policy categories covered by conditionality packages. To do so, we leverage the categorical coding from Kentikelenis, Stubbs and King (2016), which sorts conditions into twelve categories — debt, financial sector, fiscal policy, external sector, revenues and tax policy, state-owned enterprise reform and pricing, labor issues, state-owned enterprise privatization, social policy, poverty

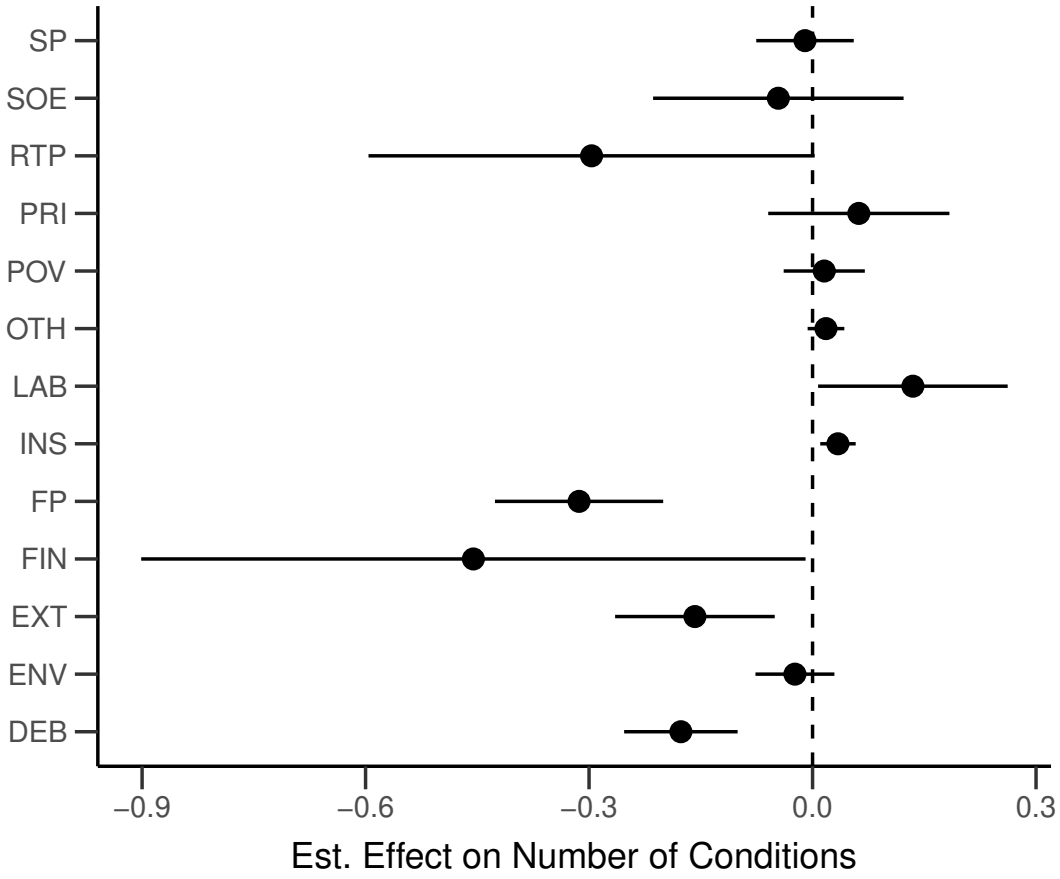
reduction, institutional reforms, land and environment, and other. The results hold directionally but fail to achieve statistical significance at conventional levels with this dependent variable (Table A13).

While the scope variable helps capture the breadth of conditionality, it still relies on a count measure, meaning it equates the difficulty of one policy area with another. However, we know that some policy areas, like debt and fiscal policy, are often more difficult for countries to reform than others — for example, poverty reduction and the environment. Mass protests and electoral turnover during IMF programs often stem from austerity measures, as recent events in Argentina and Kenya illustrate. We thus analyze the effects of climate vulnerability on the number of conditions disaggregated by category (Figure 1). We observe that countries experiencing more severe climate disasters receive fewer conditions in policy areas in which implementation of conditions is, on average, more difficult — for example, external debt, trade and exchange, and fiscal policy — and receive relatively more conditions in categories that can be easier to implement reforms — e.g., institutional reforms. Not all of the results point in the anticipated direction; for instance, labor reforms, which are often contentious (Caraway, Rickard and Anner 2012; Copelovitch and Rickard 2021), are more likely to appear in loan conditions when countries experience more extensive climate disasters. Still, in general, the results accord with our expectations — conditions that are more politically difficult to implement and that cause more short-term disruption to citizens are less likely to appear in loan programs when countries experience more damaging climate disasters.

As a final step, we attempt to overcome some of the known issues with count measures of the stringency of conditions by leveraging the text of IMF loan conditions. This approach has several advantages: it allows us to consider the difficulty of individual conditions as well as aggregate to the level of the program to assess the burdensomeness of conditionality in a comprehensive fashion. Text analysis also enables us to leverage variation in stringency both within and across policy categories.

We specifically make use of latent semantic scaling (LSS) — a semi-supervised text analysis technique that utilizes word embeddings to estimate the polarity of texts (Watanabe 2021). The

Figure 1: Disaggregating Results by Condition Area



Notes: Estimated coefficient on key independent variable from OLS models with 95% confidence intervals. The categories are as follows: debt (DEB), financial sector (FIN), fiscal policy (FP), external sector (EXT), revenues and tax policy (RTP), state-owned enterprise reform and pricing (SOE), labor issues (LAB), state-owned enterprise privatization (PRI), social policy (SP), poverty reduction (POV), institutional reforms (INS), land and environment (ENV), and other (OTH). Categorical coding comes from Kentikelenis, Stubbs and King (2016). Full tabular results are shown in Table A2.

researcher specifies a set of 'seed words' with known polarity which inform the estimated polarity of words that are used in similar contexts on a unidimensional scale. LSS is increasingly utilized in a variety of related settings, including to gauge the sentiment of economic news (Watanabe 2021), security threat emphasis (Watanabe, Segev and Tago 2022), universalism versus particularism (Zollinger 2024), and IO policy agendas (Baturo and Gray 2024).

We generate seed words that correspond to the relative ease or difficulty of loan conditions in an iterative process which combined expert reading of conditions with automated categorization by artificial intelligence (AI) models. These seed words, found in Table 2, are used to construct polarity scores for other features in the corpus, which then are used to predict condition-level and country-year difficulty scores.

We provide more extensive details on the implementation of the LSS model and illustration of the LSS results in Appendix §5. The evidence presented therein offers face validity for our estimated difficulty scores: easy words reflect conditions that are known to be less onerous to implement (e.g., the publication of reports) or allow for more room for interpretation by policymakers on compliance (e.g., anti-corruption reforms, transparency initiatives, and statistical reporting), generally reflecting institutional and bureaucratic reforms. On the other hand, difficult terms correspond to policy areas (e.g., labor, trade, and privatization) that are more difficult for policymakers to reform and include language that is more specific and concrete. Average LSS scores by policy area, found in Table A16, reflect these patterns.

For our analysis of the stringency of loan conditions, we aggregate condition-level scores to create a loan-level difficulty score, which we implement as the dependent variable in our models. The specification is otherwise identical to our baseline models. In these tests, higher scores reflect easier loans, while more negative scores indicate more difficult loans. Our theoretical logic would suggest that countries experiencing more severe climate disasters would receive less difficult loans, and thus, we should observe a positive relationship between loan ease and climate disaster impact. We find that more damaging climate disasters are indeed predictive of easier loans (Table 3), resulting in a 1.06 point decrease in loan difficulty. The substantive magnitude of this effect is

Table 2: LSS Seed Words

	easy	hard
1	complete	audits
2	finalize	business
3	develop	plan
4	publish	liquidation
5	establish	merger
6	submit	deposits
7	process	receivership
8	adopt	resolution
9	lower	bond
10	introduce	compliance
11	complete	tariff
12	review	bonus
13	confirm	privatization
14	initiate	valuation
15	passage	legislation
16	provide	budget
17	adjustment	procurement
18	rationalize	infrastructure
19	recommend	debt
20	enact	tax
21	present	appropriation
22	float	enforcement
23	approval	examination
24	presentation	strategy
25	passage	arrears
26	establishing	contractual
27	adoption	commitment
28	adjustment	headquarters
29	abolish	function
30	eliminate	taxpayer
31	recommendation	treatment
32	bring	escrow
33	publish	guarantees
34	submit	gas
35	legal	auction
36	amend	operations
37	submission	balance
38	establishment	wealth
39	adoption	electricity
40	have	petroleum
41	select	treasury
42	adopt	committee
43	establish	interest
44	presentation	bank
45	adopt	policy
46	issue	tariffs
47	adjustment	customs
48	establish	deposit
49	adoption	credit
50	adjustment	rate

quite large, corresponding to a 79 percent decrease in difficulty relative to the average loan. These results show that not only are climate vulnerable states more likely to receive less onerous loans in terms of the number of conditions, they are also likely to receive loans where the difficulty of implementation is lower. These findings also highlight the importance of leveraging the text of conditions to measure stringency; the substantive size of the relationship identified is much larger with the textual measure than the count of conditions measure.

Probing Mechanisms

Our theoretical logic places a spotlight on the initiative of bureaucrats, who grant climate vulnerable countries less burdensome conditions. We suggest that staff may do so as they observe countries' experiences with climate disasters, in line with research showing that such staff are concerned about climate change in their work at the Fund (Clark and Zucker 2023). Alternatively, staff may be responsive to management, who can push their preferred agenda items (Copelovitch and Rickard 2021). As a result of either mechanism, staff can exert influence over the design of loans to relax the burden on such states. In this section, we attempt to disentangle the precise mechanism behind our baseline findings.

First, we examine whether staff are responding to cues from institutional leaders, and specifically the Managing Director at the IMF. Both Christine Lagarde and Kristaline Georgieva have made climate a priority in their speeches. Staff may act on these directives as a result of explicit agenda-setting or more subtle socialization (e.g., Schroeder 2014; Copelovitch and Rickard 2021). To account for the potential influence of IMF Managing Directors, we replace year fixed effects with Managing Director fixed effects and recover our main findings (Table A8). This suggests that the effect of climate vulnerability on the stringency of loan conditions is not driven by institutional leaders alone.

It is also possible that staff are answering to powerful member states that desire increased attention be paid to climate issues at the Fund. We expressed skepticism towards this mechanism

Table 3: Loan Ease (LSS) as Alternate DV

Model:	(1)	(2)
Variables		
Climate Disasters	1.06**	1.06**
	(0.429)	(0.405)
Polyarchy		5.47
		(6.35)
UNSC Member		2.98*
		(1.66)
GDPPC (log)		0.444
		(3.23)
Trade/GDP		-0.012
		(0.020)
FDI/GDP		0.004
		(0.036)
Debt/GNI		0.017
		(0.011)
Debt service/exports		0.034
		(0.042)
ODA/GNI (log)		-1.31
		(0.817)
US Ideal Point Diff.		0.330
		(0.621)
Fixed-effects		
Year	Yes	Yes
Country	Yes	Yes
Fit statistics		
Observations	564	564
R^2	0.450	0.462

Clustered (Year & Country) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

in our theoretical discussion since the powerful principals at the IMF vary widely in the extent to which they have tackled climate domestically (cf. Copelovitch 2010*a*). Our preferred explanation is that individual staff members take an interest in climate issues as they observe the damage caused by disasters in recipient countries. To alleviate the burden placed on such states, and in recognition of their climate vulnerability, staff grant these states breaks on conditions. However, we recognize that powerful member state influence is pervasive at the Fund (Stone 2011).

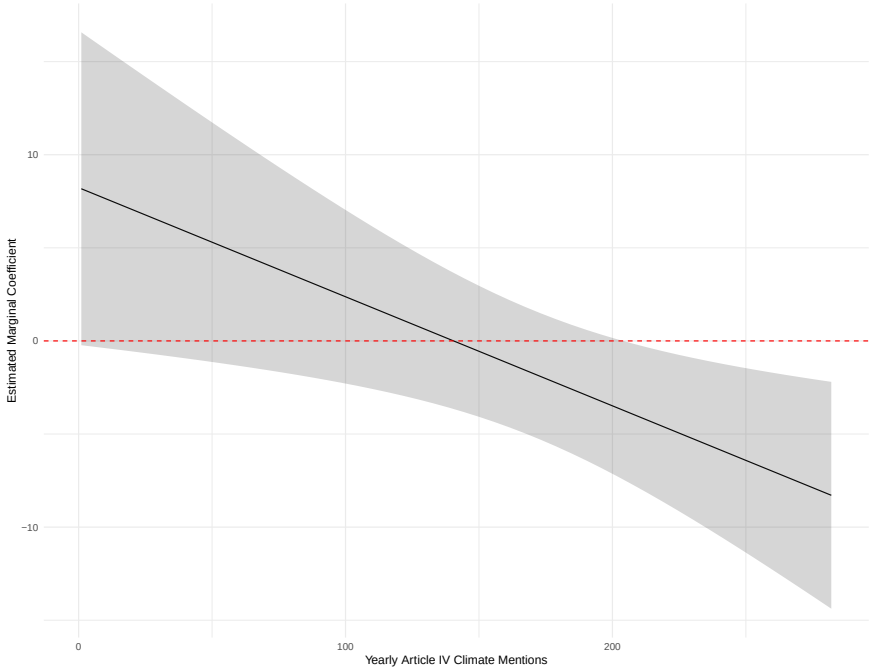
Thus, we conduct two sets of analyses that seek to disentangle and explicitly test staff versus member state influence. To do so, we create measures of the attention paid to climate change by both IMF staff and member states. To capture staff attention, we measure the number of climate mentions each year included in all Article IV documents (Clark and Zucker 2023). Article IV reports are one of the Fund's most influential products, as they shape both market perceptions and state behavior (Breen and Doak 2021; Goes and Chapman 2024). These documents are routine reports on member state economies and identify potential threats to economic stability and development.[19] Importantly, Article IV is an area over which rank-and-file staff have a great deal of autonomy (Clark and Zucker 2023; Goes and Chapman 2024), making this a reliable measure of staff interest in climate change. To measure state attention, we construct a measure that captures the stock of national climate laws adopted by all IMF member states in a given year (see Eskander and Fankhauser 2020; Gazmararian and Milner 2023). We also specify a measure in which we count only climate laws adopted by G-5 states (the United States, United Kingdom, Germany, France, and Japan) to specifically capture attention by the IMF's most powerful member states (see Copelovitch 2010*a*; Stone 2011). Descriptively, these measures of attention suggest increasing focus on climate issues by states and staff over time.

We interact each measure of climate attention with our measure of climate disaster impact to assess whether the impact of disasters is moderated by attention — either of staff or states. We show the results in Table 4. Model 1 tests the effect of staff attention; Model 2 depicts the relationship with member state attention in general; and Model 3 estimates the effect of powerful

[19]We use data from Clark and Zucker (2023) on mentions of "climate" in Article IV reports and aggregate to the year-level.

member state (G-5) attention. The results provide evidence for a staff- rather than state-based mechanism; we find no significant interaction effect of climate disasters with state interest but a significant interaction effect of climate disasters with staff attention. Figure 2 illustrates the interaction between the impact of climate disasters and Article IV climate mentions; as the number of Article IV mentions of climate change increase (i.e., when IMF staff are paying more attention to the potential risks that climate change poses to countries' economies), the incidence of climate disasters is associated with a larger reduction in the number of conditions included in loans. Put differently, only when staff are attentive to climate issues do we identify a negative and statistically significant relationship between climate disasters and the burdensomeness of IMF conditions.

Figure 2: Interaction Effects: Staff Attention to Climate



Notes: Estimated coefficient on key independent variable from OLS models with 95% confidence intervals. Full tabular results are shown in Table 4, Column 1.

In sum, we find convincing evidence that IMF staff are reducing the burden of reform placed on loan recipients experiencing severe climate disasters. When staff are collectively attuned to climate, countries that experience more damaging climate disasters receive significantly fewer conditions with less intrusive language.

Table 4: Mechanisms Tests

Model:	(1)	(2)	(3)
Variables			
Climate Disasters	7.13	-1.32**	-1.20
	(4.66)	(0.592)	(0.750)
Article IV Climate Mentions	-0.001		
	(0.003)		
Climate Disasters × Article IV Climate Mentions	-0.051**		
	(0.024)		
Country Climate Laws		-0.0003	
		(0.0003)	
Climate Disasters × Country Climate Laws		0.0002	
		(0.001)	
G5 Climate Laws			-0.012
			(0.007)
Climate Disasters × G5 Climate Laws			-0.0003
			(0.028)
Polyarchy	-2.60	-2.21	-2.12
	(2.89)	(2.82)	(2.80)
UNSC Member	-0.752	-1.10*	-1.14*
	(1.19)	(0.582)	(0.593)
GDPPC (log)	-0.460	-2.22	-2.13
	(2.01)	(1.72)	(1.69)
Trade/GDP	-0.018***	-0.011	-0.011
	(0.007)	(0.008)	(0.008)
FDI/GDP	0.005	-0.011	-0.012
	(0.007)	(0.011)	(0.012)
Debt/GNI	0.013**	0.013***	0.012***
	(0.006)	(0.004)	(0.004)
Debt service/exports	0.024	0.005	0.005
	(0.053)	(0.011)	(0.011)
ODA/GNI (log)	-0.836	-1.30**	-1.30**
	(0.747)	(0.555)	(0.551)
US Ideal Point Diff.	-0.037	-0.502	-0.516
	(0.726)	(0.535)	(0.529)
Fixed-effects			
Country	Yes	Yes	Yes
Fit statistics			
Observations	265	564	564
R^2	0.516	0.372	0.373

Clustered (Country) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Conclusion

We have argued and provided evidence that when countries experience more severe climate disasters, they receive breaks on loan conditions at the IMF. We posit a role for staff in these institutions, who have significant discretion over the design of conditional loan programs and increasingly express concern about climate change. We show that realized climate vulnerability translates into IMF loans with fewer conditions, and using a novel text analytical approach, show that such climate vulnerable states also obtain less difficult loan terms.

We probe several mechanisms by which one could explain the relationship between experiences of climate disasters and less onerous IMF lending: executive influence, state attention, and staff attention. We do not find evidence that the attention of executives, member states in general, or powerful member states in particular moderates the relationship between climate vulnerability and IMF lending. Rather, we find that staff attention conditions this relationship: only when IMF staff are attentive to the risks posed by climate change do they grant breaks to states experiencing severe climate disasters.

This paper contributes to several important strands of research. First, we build on a burgeoning literature interested in how IO staff shape policymaking in the institutions for which they work. Existing research shows that bureaucrats shape the contents of working papers and surveillance reports as well as the performance and form of loan programs in IFIs (Heinzel and Liese 2021; Heinzel 2022; Cormier and Manger 2022; Clark and Zucker 2023; Lang, Kentikelenis and Wellner 2024; Heinzel, Weaver and Jorgensen 2024). We extend this line of work by showing how staff are incorporating climate considerations into IFI lending in subtle yet impactful ways, namely by lessening the adjustment required of climate vulnerable countries under loan programs. Second, we speak to debates over whether and how institutions can reform themselves to tackle climate change and address emerging issues in global governance. While existing work tends to focus on formal changes to IOs, including the introduction of new lending instruments and alterations to organizational funding and decision rules (Nielson and Tierney 2003; Jupille, Mattli and Snidal 2013; Kaya 2015; Carnegie and Clark 2023), we point to less crude levers available to IO staff.

We also break new empirical ground by utilizing the text of conditions rather than simple counts of conditions and policy areas to measure the stringency of loan conditions. Future work can build on this approach to probe the ways in which IFI loans are constructed with greater nuance, contributing to broader efforts to apply computational methods to the study of international cooperation (Alschner 2019).

Though our primary evidence comes from the IMF, we show that similar patterns are evident at the World Bank, and we believe our account to be broadly generalizable. We encourage scholars to think more holistically about how staff might grant breaks or award benefits to countries vulnerable to the physical impacts of climate change. For instance, in IFIs, bureaucrats could award such states more loans, larger loans, longer maturities on their loans, favorable reforms, and more. Outside of the domain of IFIs, staff may also become climate concerned, including in areas like international trade and investment. For example, bureaucrats in national aid organizations are also likely to pay attention to the potential risks that climate disasters pose to development, and thus may also attempt to account for vulnerability in bilateral aid or loan agreements. Additionally, other issues that staff increasingly prioritize—for example, gender equity—may similarly bubble up in subtle ways to affect lending activities.

Our findings have real-world implications for IFIs and the recipient states such organizations serve. On the one hand, cutting breaks to countries when they are dealing with devastating climate disasters provides them with crucial space to maneuver, including flexibility over how resources are spent. This may permit governments to direct crucial aid to hard-hit regions as well as invest in adaptation to reduce the risk of future disasters. On the other hand, the Fund lends to countries with untenable economic policies, and easing the burden of reform can allow economic inefficiencies, corruption, and counterproductive policies to persist, with a human toll of their own. Thus, an alternative interpretation of our findings is that climate disasters erode the IMF's ability to enforce difficult but necessary policy adjustments. We encourage scholars to further unpack to practical implications of the relationship we detect, especially as IFIs rapidly pivot themselves to tackle climate change more directly.

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Risk and Responsibility: Climate Vulnerability and IMF Conditionality

Online Appendices

Contents

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1 Variable Sources

In addition to our original data, we drew on the following sources for additional variables:

- Polyarchy: Varieties of Democracy
- GDP per capita, FDI / GDP, Debt / GNI, Trade / GDP, Debt service / Exports, ODA / GNI: World Development Indicators.
- IMF program participation: Alexander E. Kentikelenis, Thomas H. Stubbs and Lawrence P. King. 2016. "IMF Conditionality and Development Policy Space, 1985–2014." *Review of International Political Economy* 23(4):543–582.
- UN ideal point distance: Michael A. Bailey, Anton Strezhnev and Erik Voeten. 2017. "Estimating Dynamic State Preferences from United Nations Voting Data." *Journal of Conflict Resolution* 61(2):430–456.
- UNSC membership: Dreher, Axel. 2009. "IMF Conditionality: Theory and Evidence." Public Choice 141 (1): 233–67. Supplemented with hand coding from UN online resources to bring up-to-date.

2 Summary Statistics

Table A1: Summary Statistics: IMF Data

Var.	Min.	1st Qu.	Median	Mean	3rd Qu.	Max.	Pct. Missing
Disaster Affected	0	0.00	0.00	1027567.94	24604.50	346548559	0
Total Conditions	0	0.00	0.00	0.74	0.00	28	0
Polyarchy	0	0.28	0.52	0.52	0.77	1	0
UNSC Member	0	0.00	0.00	0.05	0.00	1	0
GDPPC	251	1405.13	4119.57	11965.10	13527.66	112418	0.03
Trade/GDP	15	53.47	74.99	86.44	103.05	443	0.10
FDI/GDP	-117	1.17	2.86	5.51	5.71	449	0.03
DEBT/GNI	1	26.09	42.38	55.81	69.68	610	0.36
Debt Service/Exports	0	2.81	5.79	8.08	10.23	135	0.40
ODA/GNI	-1	0.44	2.62	5.57	7.75	92	0.29
UN voting (ideal point distance)	0	2.06	3.09	2.87	3.43	5	0.04

Figure A1: Missingness Maps

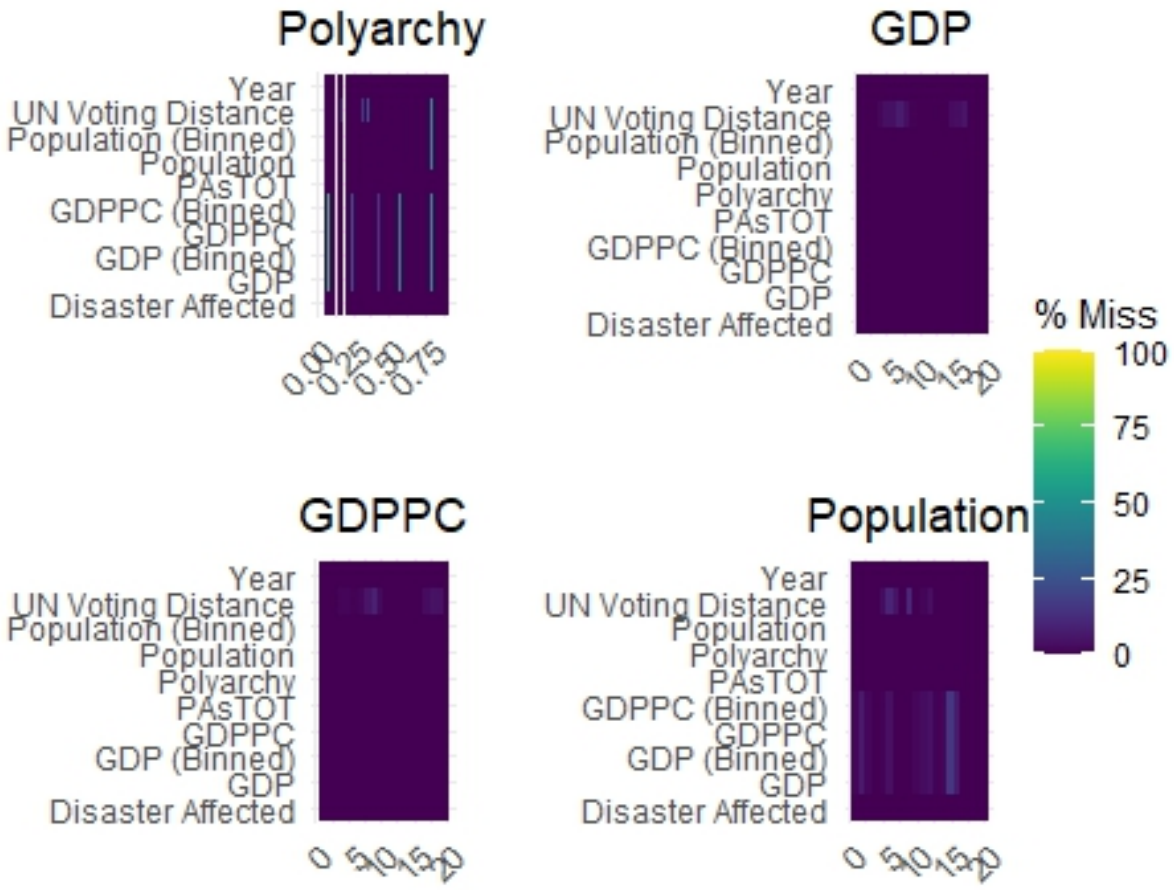
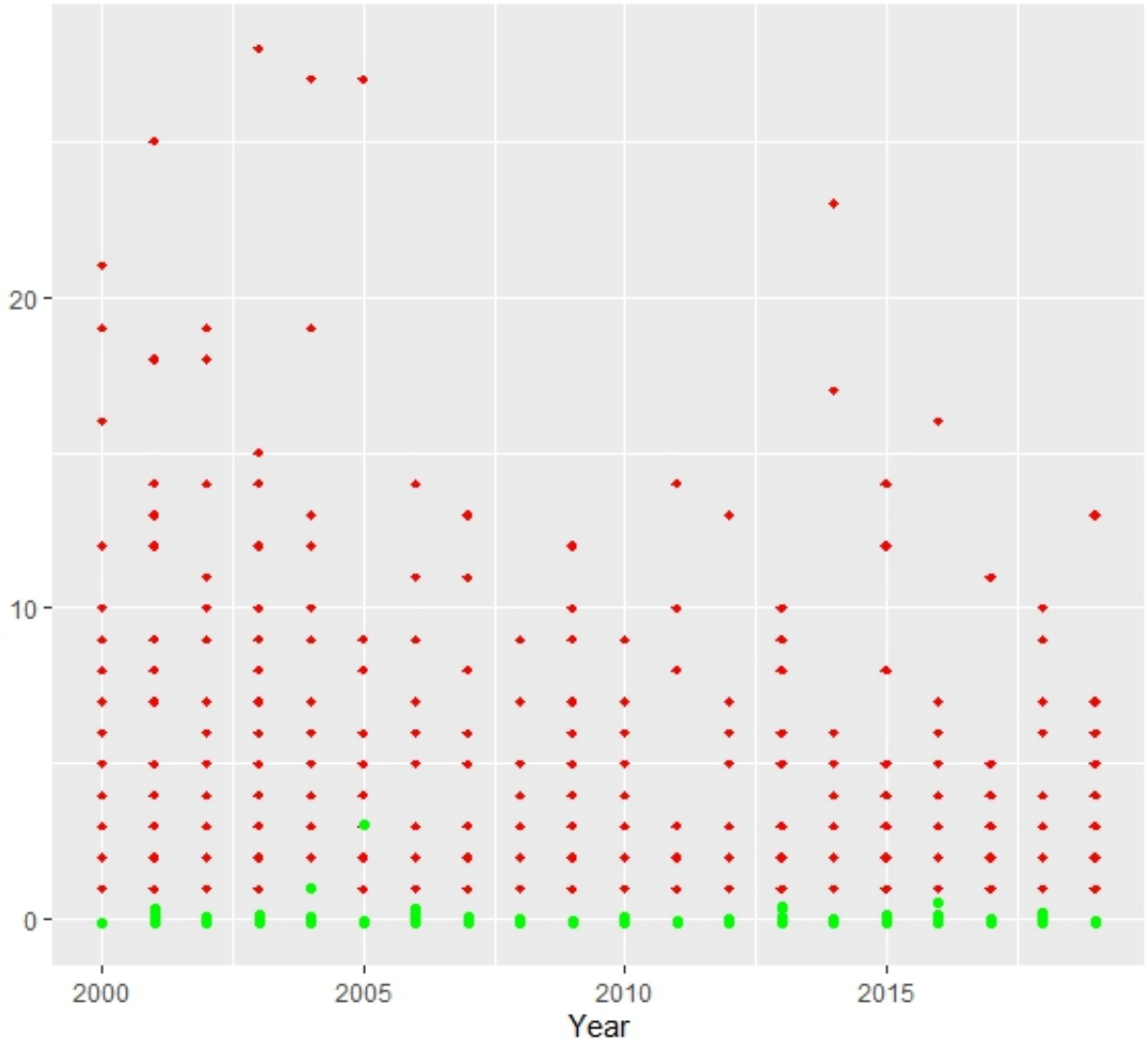


Figure A2: Time Trends. Green is scaled climate disaster impact (population share affected by climate disasters in a given country-year). Red is the number of IMF conditions.



3 Research Ethics

This research conforms to all principles contained within the APSA *Principles and Guidance for Human Subjects Research*. Human subjects research was exclusively conducted with public officials at the International Monetary Fund and World Bank; we did not engage with low-power or vulnerable populations, and our contact with these officials did not put these populations at risk indirectly. We obtained voluntary informed consent from all officials via email, transparently communicating our affiliations, the purposes of our research, and other information about the study. We employed no deception — we principally asked subjects for oral histories of their past experiences. No harm or trauma was expected or identified. All subjects were informed of and ensured confidentiality. As the content of these interviews were the acquisition of oral histories, we did not anticipate or observe any impact on political processes. This research was deemed exempt by the Institutional Review Board at [UNIVERSITY REDACTED].

4 Robustness Tests

Table A2: Predicted Number of Conditions, Disaggregated by Condition Area

Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Policy Area:	DEB	ENV	EXT	FIN	FP	INS	LAB	OTH	POV	PRI	RTP	SOE	SP
Variables													
Climate Disasters	-0.183***	-0.021	-0.167**	-0.493*	-0.333***	0.021	0.117	0.009	0.019	0.040	-0.302	-0.047	-0.006
	(0.045)	(0.032)	(0.061)	(0.255)	(0.057)	(0.021)	(0.079)	(0.014)	(0.034)	(0.061)	(0.194)	(0.104)	(0.038)
Polyarchy	0.288	-0.089	-0.636	1.27	0.986	-0.017	0.231	0.058	-0.217	0.400	-1.11	-1.85**	-0.060
	(0.321)	(0.083)	(0.769)	(0.977)	(0.809)	(0.392)	(0.558)	(0.062)	(0.155)	(0.474)	(0.889)	(0.874)	(0.291)
UNSC Member	-0.084	0.030	-0.078	-0.268	0.282	-0.189**	-0.091	0.037	-0.057	0.051	-0.292	-0.234	-0.145
	(0.106)	(0.058)	(0.086)	(0.189)	(0.357)	(0.069)	(0.094)	(0.056)	(0.034)	(0.134)	(0.266)	(0.229)	(0.133)
GDPPC (log)	-0.396**	-0.019	0.066	0.198	-0.659	-0.088	-0.504**	0.044	0.027	0.050	-0.040	0.058	0.046
	(0.170)	(0.030)	(0.168)	(0.487)	(0.434)	(0.158)	(0.220)	(0.062)	(0.039)	(0.157)	(0.283)	(0.398)	(0.055)
Trade/GDP	-0.001	0.0002	-0.0008	-0.003	-0.004	7.03×10^{-5}	-0.003	0.0002	0.0006	0.0010	0.0003	0.0003	0.0009
	(0.003)	(0.0004)	(0.002)	(0.004)	(0.004)	(0.001)	(0.002)	(0.0003)	(0.0006)	(0.001)	(0.002)	(0.003)	(0.001)
FDI/GDP	0.004	-0.0002	-0.002	0.003	0.002	0.004	-0.001	-0.0009	0.0006	-0.004**	-0.007**	-0.002	-0.001
	(0.004)	(0.0004)	(0.002)	(0.011)	(0.006)	(0.002)	(0.003)	(0.0006)	(0.0006)	(0.002)	(0.003)	(0.002)	(0.001)
Debt/GNI	0.001*	0.0002	-0.001	0.0001	0.003	-0.0005	0.0005	-0.0008***	9.47×10^{-5}	-0.002**	-0.002*	0.0002	0.0003
	(0.0008)	(0.0002)	(0.0007)	(0.002)	(0.002)	(0.0007)	(0.001)	(0.0003)	(0.0001)	(0.0007)	(0.001)	(0.0009)	(0.0006)
Debt service/exports	-0.001	-0.0002	0.003	-0.004	-0.009	0.004	-0.003	0.002	0.0007	0.005*	0.013	-0.003	0.002
	(0.002)	(0.0005)	(0.003)	(0.007)	(0.009)	(0.004)	(0.003)	(0.003)	(0.0009)	(0.003)	(0.011)	(0.004)	(0.002)
ODA/GNI (log)	-0.010	-0.017	-0.001	-0.109	-0.344**	0.007	-0.210*	0.013	-0.021	-0.009	0.123	-0.127	0.033
	(0.062)	(0.032)	(0.082)	(0.147)	(0.140)	(0.050)	(0.111)	(0.018)	(0.022)	(0.055)	(0.169)	(0.127)	(0.041)
US Ideal Point Diff.	-0.122**	-0.007	-0.033	-0.028	-0.027	-0.048	0.138	0.013	-0.0007	0.047	0.042	-0.157	-0.005
	(0.055)	(0.012)	(0.084)	(0.143)	(0.234)	(0.054)	(0.114)	(0.013)	(0.011)	(0.097)	(0.153)	(0.099)	(0.059)
Fixed-effects													
Country	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fit statistics													
Observations	564	564	564	564	564	564	564	564	564	564	564	564	564
R^2	0.250	0.551	0.294	0.357	0.274	0.266	0.375	0.241	0.291	0.396	0.350	0.331	0.289

Clustered (Country & Year) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table A3: Predicting Number of Conditions (WB Robustness)

Model:	(1)	(2)
Variables		
Climate Disasters	-0.103***	-0.095***
	(0.026)	(0.024)
Polyarchy		0.977
		(1.91)
UNSC Member		0.049
		(0.231)
GDPPC (log)		1.26
		(1.43)
Trade/GDP		0.005
		(0.006)
FDI/GDP		-0.015
		(0.019)
Debt/GNI		0.005
		(0.004)
Debt service/exports		-0.015
		(0.020)
ODA/GNI (log)		0.177
		(0.486)
US Ideal Point Diff.		0.605
		(0.356)
Fixed-effects		
Country	Yes	Yes
Year	Yes	Yes
Fit statistics		
Observations	1,033	1,033
R^2	0.290	0.295

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table A4: Predicting Number of Conditions (Listwise Deletion)

Model:	(1)	(2)
Variables		
Climate Disasters	-1.33***	-1.19***
	(0.338)	(0.340)
Polyarchy		-0.527
		(2.06)
UNSC Member		-0.817
		(0.551)
GDPPC (log)		-2.83*
		(1.40)
Trade/GDP		-0.007
		(0.018)
FDI/GDP		-0.031*
		(0.018)
Debt/GNI		-0.003
		(0.008)
Debt service/exports		0.007
		(0.017)
ODA/GNI (log)		0.072
		(0.587)
US Ideal Point Diff.		-0.260
		(1.04)
Fixed-effects		
Year	Yes	Yes
Country	Yes	Yes
Fit statistics		
Observations	564	397
R^2	0.392	0.451

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table A5: Swap Year FEs for Time Trends

Model:	(1)	(2)
Variables		
Climate Disasters	-1.10***	-1.05***
	(0.232)	(0.284)
Year	-98.9***	-86.1**
	(25.9)	(33.3)
Year square	0.025***	0.021**
	(0.006)	(0.008)
Polyarchy		-1.69
		(2.68)
UNSC Member		-0.892
		(0.573)
GDPPC (log)		-0.777
		(1.71)
Trade/GDP		-0.005
		(0.008)
FDI/GDP		-0.006
		(0.010)
Debt/GNI		0.004
		(0.005)
Debt service/exports		-0.010
		(0.009)
ODA/GNI (log)		-0.483
		(0.434)
US Ideal Point Diff.		-0.312
		(0.557)
Fixed-effects		
Country	Yes	Yes
Fit statistics		
Observations	564	564
R^2	0.381	0.386

Clustered (Country) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table A6: Negative Binomial Models

Model:	(1)	(2)
Variables		
Climate Disasters	-0.290***	-0.275***
	(0.095)	(0.097)
Polyarchy		-0.177
		(0.392)
UNSC Member		-0.191
		(0.124)
GDPPC (log)		-0.019
		(0.476)
Trade/GDP		-0.002
		(0.002)
FDI/GDP		-0.0003
		(0.003)
Debt/GNI		0.001*
		(0.0009)
Debt service/exports		-0.003
		(0.002)
ODA/GNI (log)		-0.073
		(0.104)
US Ideal Point Diff.		-0.070
		(0.113)
Fixed-effects		
Year	Yes	Yes
Country	Yes	Yes
Fit statistics		
Observations	564	564

Clustered (Year & Country) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table A7: Remove Waived Conditions

Model:	(1)	(2)
Variables		
Climate Disasters	-2.48***	-2.47***
	(0.091)	(0.011)
Polyarchy		-4.04*
		(2.27)
UNSC Member		-0.982*
		(0.529)
GDPPC (log)		-0.827
		(1.89)
Trade/GDP		0.005
		(0.010)
FDI/GDP		-0.002
		(0.010)
Debt/GNI		0.003
		(0.005)
Debt service/exports		-0.033***
		(0.011)
ODA/GNI (log)		-0.667
		(0.664)
US Ideal Point Diff.		-0.052
		(0.474)
Fixed-effects		
Year	Yes	Yes
Country	Yes	Yes
Fit statistics		
Observations	564	564
R^2	0.334	0.345

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table A8: Managing Director Fixed Effects

Model:	(1)	(2)
Variables		
Climate Disasters	-1.16***	-1.09**
	(0.170)	(0.271)
Polyarchy		-0.967
		(2.67)
UNSC Member		-1.33**
		(0.417)
GDPPC (log)		-0.768
		(2.09)
Trade/GDP		-0.008
		(0.015)
FDI/GDP		0.005
		(0.013)
Debt/GNI		0.005
		(0.007)
Debt service/exports		-0.005
		(0.009)
ODA/GNI (log)		-1.21
		(0.750)
US Ideal Point Diff.		-0.303
		(0.422)
Fixed-effects		
Managing Director	Yes	Yes
Country	Yes	Yes
Fit statistics		
Observations	537	537
R^2	0.392	0.406

Clustered (name & Country) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

To account for selection into IMF programs, we estimate a two stage instrumental variable model following Clark and Meyerrose (2024). They predict the probability of a given IMF member state participating in a loan program in a given year with the interaction between the Fund's budget constraint and a country's general propensity to take IMF lending, as well as a cohort of control variables. See Stubbs and Kentikelenis (2018, 46) for a broader discussion of this instrument. We use the predicted probabilities generated by Clark and Meyerrose (2024) and incorporate them as inverse probability weights, as they do in their paper. The first stage results appear below (Table A9). This instrument passes a weak instrument test (F = 29). Our results hold directionally in the bivariate and with statistical significance with our full cohort of control variables included, as Table A10 below shows.

Table A9: First Stage (IV)

Model:	(1)
Variables	
Budget constraint:Participation rate	0.172***
	(0.034)
Quota	1.310***
	(0.475)
Time to last IMF program	0.015*
	(0.009)
Polity2	0.082*
	(0.044)
Reserves	−0.443***
	(0.067)
GDPPC	−0.312
	(0.222)
Current account / GDP	−0.071*
	(0.038)
UNSC member	−0.227**
	(0.098)
U.S. aid	0.138***
	(0.034)
DAC aid	0.057
	(0.044)
UN voting	−0.249***
	(0.066)
FDI / GDP	0.088
	(0.064)
Inflation	0.006
	(0.026)
Openness	−0.033
	(0.051)
Debt service / exports	0.237***
	(0.040)
Short-term debt / exports	−0.021
	(0.025)
Election year	0.043
	(0.073)
Country fixed effects	Yes
Year fixed effects	Yes
Model type	Probit
N	6233

***p < .01; **p < .05; *p < .1

Table A10: Predicting Number of Conditions (IV)

Model:	(1)	(2)
Variables		
Climate Disasters	-4.97	-6.54***
	(3.40)	(1.37)
Polyarchy		25.1
		(19.0)
UNSC Member		-0.683
		(1.41)
GDPPC (log)		-6.46
		(7.88)
Trade/GDP		-0.036
		(0.046)
FDI/GDP		-0.057
		(0.048)
Debt/GNI		0.002
		(0.036)
Debt service/exports		0.041
		(0.097)
ODA/GNI (log)		2.67*
		(1.44)
US Ideal Point Diff.		3.05
		(3.75)
Fixed-effects		
Year	Yes	Yes
Country	Yes	Yes
Fit statistics		
Observations	596	596
R^2	0.436	0.526

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table A11: Slow vs. Rapid-Onset Disasters

Model:	(1)	(2)	(3)	(4)
Variables				
Slow-Onset Disasters	-1.28**	0.496		
	(0.520)	(3.18)		
Fast-Onset Disasters			-0.704***	-0.740***
			(0.126)	(0.057)
Polyarchy		-0.624		-0.482
		(2.11)		(2.06)
UNSC Member		-0.857		-0.811
		(0.540)		(0.548)
GDPPC (log)		-2.67*		-2.81*
		(1.45)		(1.39)
Trade/GDP		-0.006		-0.007
		(0.018)		(0.018)
FDI/GDP		-0.032*		-0.030*
		(0.017)		(0.018)
Debt/GNI		-0.003		-0.003
		(0.008)		(0.008)
Debt service/exports		0.007		0.007
		(0.017)		(0.017)
ODA/GNI (log)		0.087		0.079
		(0.587)		(0.586)
US Ideal Point Diff.		-0.311		-0.242
		(1.06)		(1.04)
Fixed-effects				
Year	Yes	Yes	Yes	Yes
Country	Yes	Yes	Yes	Yes
Fit statistics				
Observations	564	397	564	397
R^2	0.391	0.449	0.392	0.451

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Figure A3: Panel Match Treatment Matching

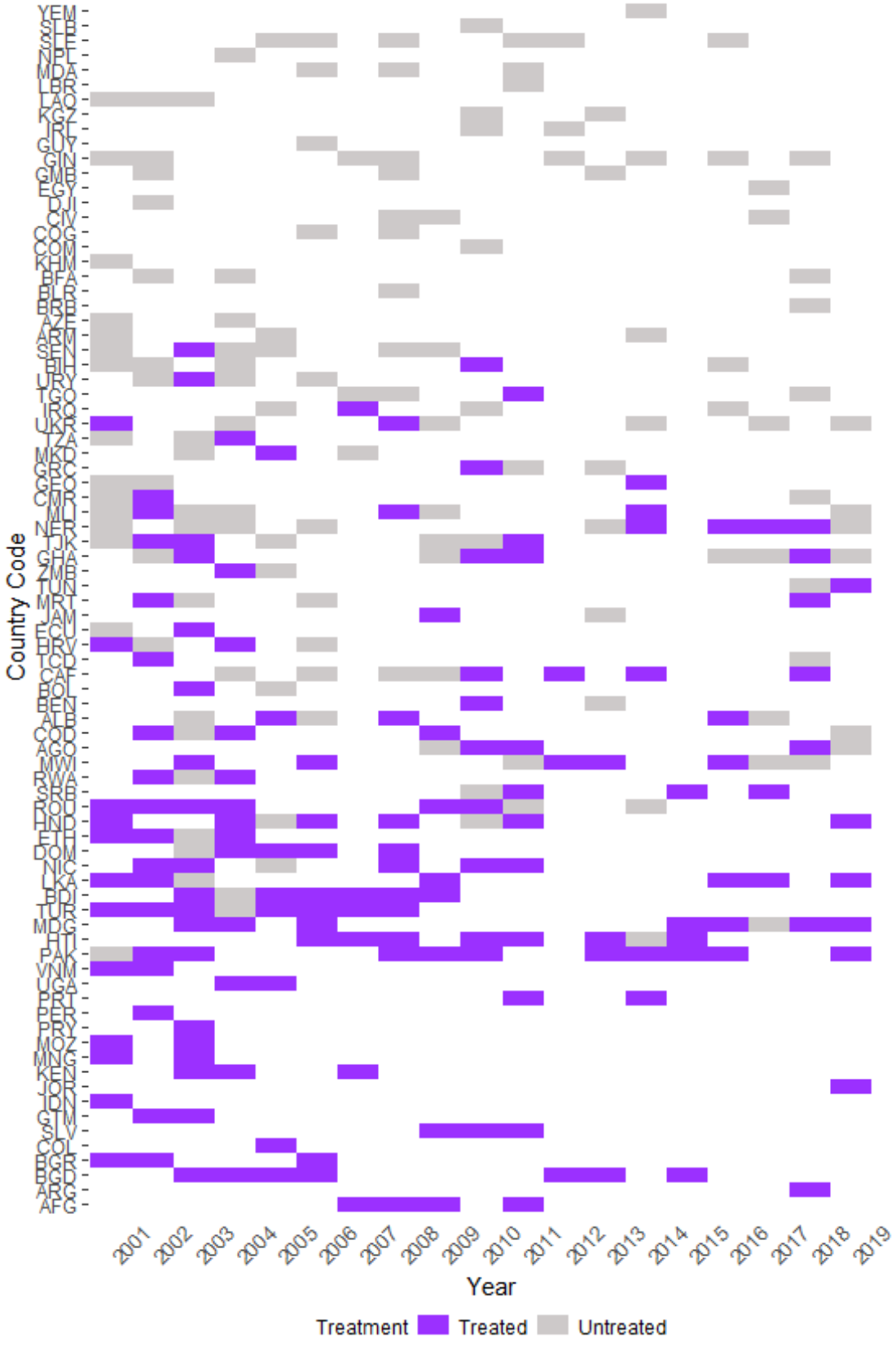


Figure A4: Panel Match Results

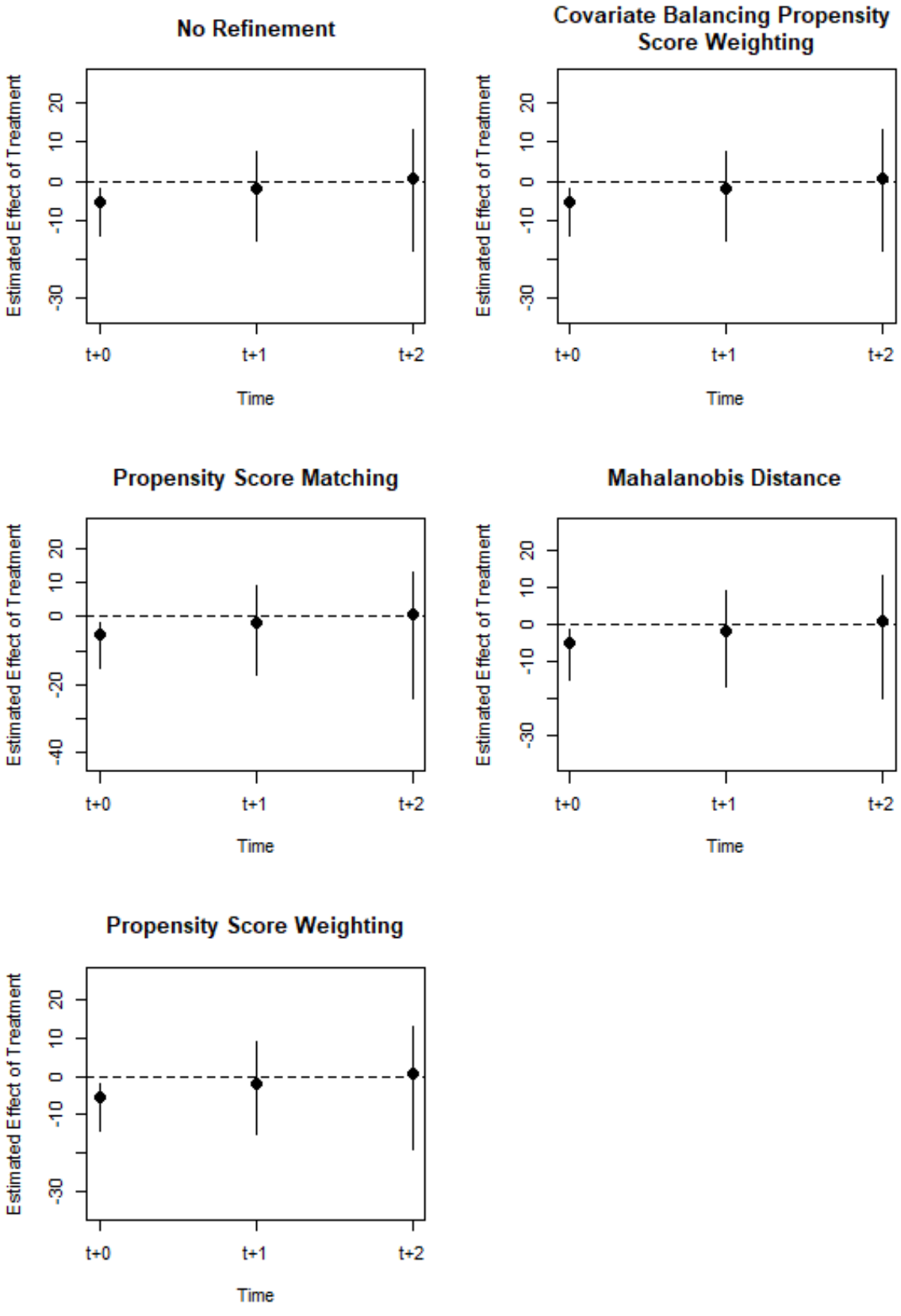


Table A12: Placebo Tests

Model:	(1)	(2)
Variables		
Geophysical Disasters	-0.019	0.106
	(0.466)	(0.478)
Polyarchy		-0.656
		(2.11)
UNSC Member		-0.859
		(0.544)
GDPPC (log)		-2.71*
		(1.38)
Trade/GDP		-0.006
		(0.018)
FDI/GDP		-0.032*
		(0.018)
Debt/GNI		-0.003
		(0.008)
Debt service/exports		0.007
		(0.018)
ODA/GNI (log)		0.067
		(0.604)
US Ideal Point Diff.		-0.325
		(1.06)
Fixed-effects		
Year	Yes	Yes
Country	Yes	Yes
Fit statistics		
Observations	564	397
R^2	0.390	0.449

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Table A13: Replace Conditions Count DV With Number of Loan Condition Categories

Model:	(1)	(2)
Variables		
Climate Disasters	-0.285	-0.258
	(0.171)	(0.191)
Polyarchy		-0.960
		(1.22)
UNSC Member		-0.294
		(0.225)
GDPPC (log)		-0.233
		(0.798)
Trade/GDP		-0.0004
		(0.004)
FDI/GDP		-0.008
		(0.005)
Debt/GNI		0.001
		(0.002)
Debt service/exports		0.0006
		(0.009)
ODA/GNI (log)		0.021
		(0.161)
US Ideal Point Diff.		-0.268*
		(0.135)
Fixed-effects		
Year	Yes	Yes
Country	Yes	Yes
Fit statistics		
Observations	564	564
R^2	0.394	0.400

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

5 Latent Semantic Scaling Details

Latent semantic scaling (LSS) is a weakly supervised text analysis approach. The researcher specifics a set of 'seed words' with known polarity on the dimension of interest. The polarity of the words in this dictionary is used to estimate the polarity of all other terms in the corpus's document-feature matrix (DFM) based on their semantic similarity (vector space distance between word embeddings) to the seed words (Watanabe 2021). The estimated polarity of terms in the DFM is then utilized to predict polarity at the document-level (in this case, at the condition level).

We construct a corpus of the texts of all IMF conditions from 1978-2021, using data from Kentikelenis, Stubbs and King (2016) and pre-processing to remove punctuation, symbols, stop words, numbers, and extremely rare words (those that occur less than 15 times in the corpus). We also lowercase all conditions.

To generate the dictionary of seed words in the easy and difficult conditions, we utilized an approach based on both our expert reading of IMF texts and artificial intelligence-assisted coding. First, we established the set of seed words that we expected to be associated with ease and difficulty based on our readings of text to create a benchmark. Second, we developed a prompt which was provided to chatGPT 3.5 along with a random sample of 100 conditions to generate 50 easy and difficult seed words.[1] We recover similar results using both our human-generated and AI-generated seed words. AI-generated seed words resulted in more precise estimates, so we present these results in the main text. These seed words are shown in Table 2.

We estimate term polarity over 300 iterations of the LSS model. The estimated polarity of terms is illustrated in Figure A5, where words are arrayed from most difficult to easiest on the x-axis and term frequency appears on the y-axis. The 'easiest' and 'hardest' terms are shown in Tables A14 and A15: more positive LSS scores indicate easier terms and more negative LSS scores indicate harder terms.

These term-level polarity estimates are used to predict the condition-level difficulty, which is then summed across all of the conditions a country receives in a given year to a country-year difficulty score. To predict the polarity of conditions on the easy-difficult dimension, we specify a minimum number of words of 10, which prevents short conditions from receiving extremely large negative or positive scores. Without this specification, polarity for short conditions would take on extreme values because the polarity of documents is predicted based on the polarity of words weighted by their frequency. These polarity scores become the dependent variable for the estimation of the models in Table 3.

The condition-level measure of difficulty ranges from -6.1453 to 6.3195 with a mean of 0 and a median of -0.124. The country-year level difficulty score ranges from -27.1505 to 50.9820 with a mean of 1.3368 and a median of 0.6772. The states receiving the most difficult loans are Romania (2003), Pakistan (2001, 2002), and Haiti (2007). The states receiving the easiest loans are Benin (2007, 2006), Belarus (2010, 2009), and Bangladesh (2003).

[1] Multiple iterations of prompts, text samples, number of seed words, and numbers of text included in the sample were tested and results were similar in each case.

Figure A5: Difficulty scores of words

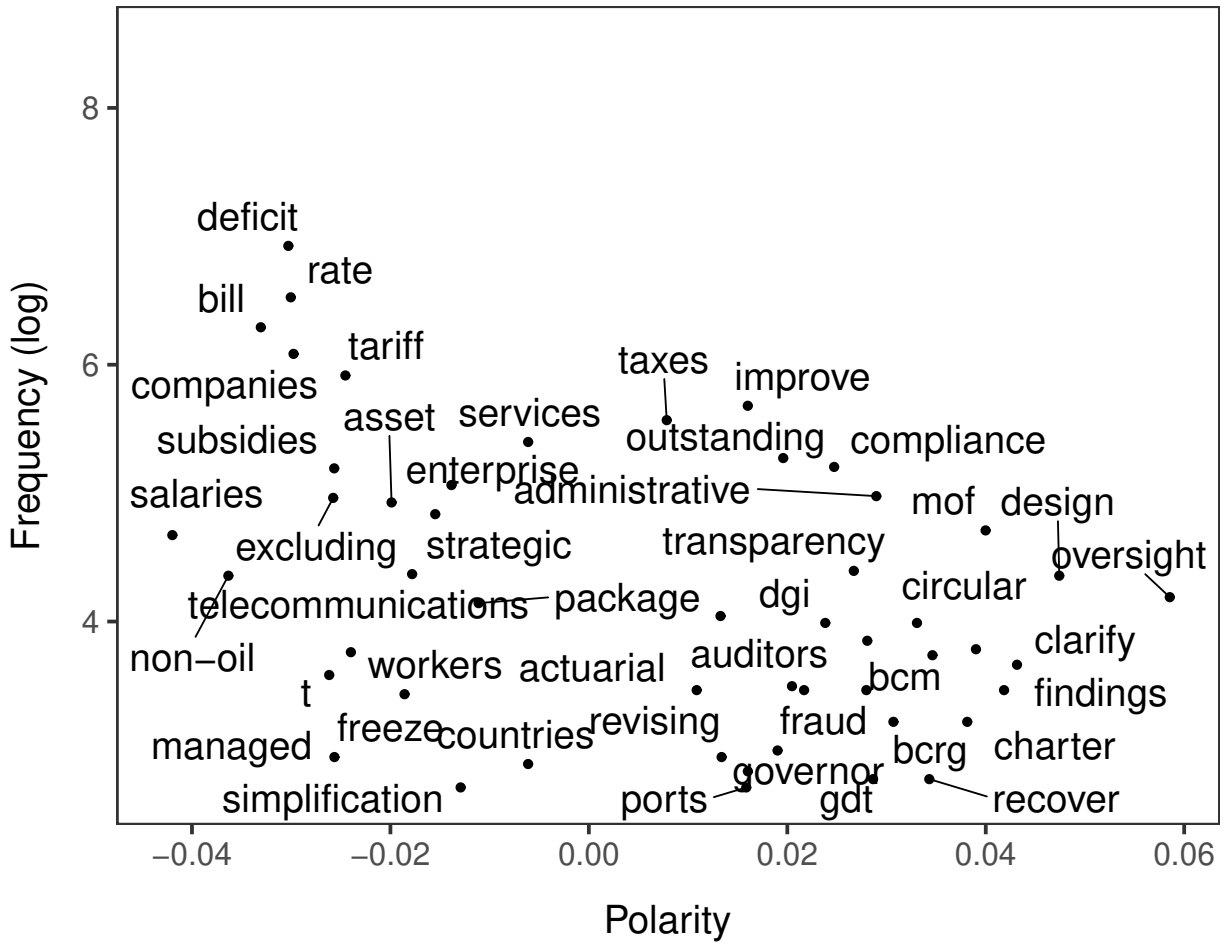


Figure A6: Conditions become easier over time

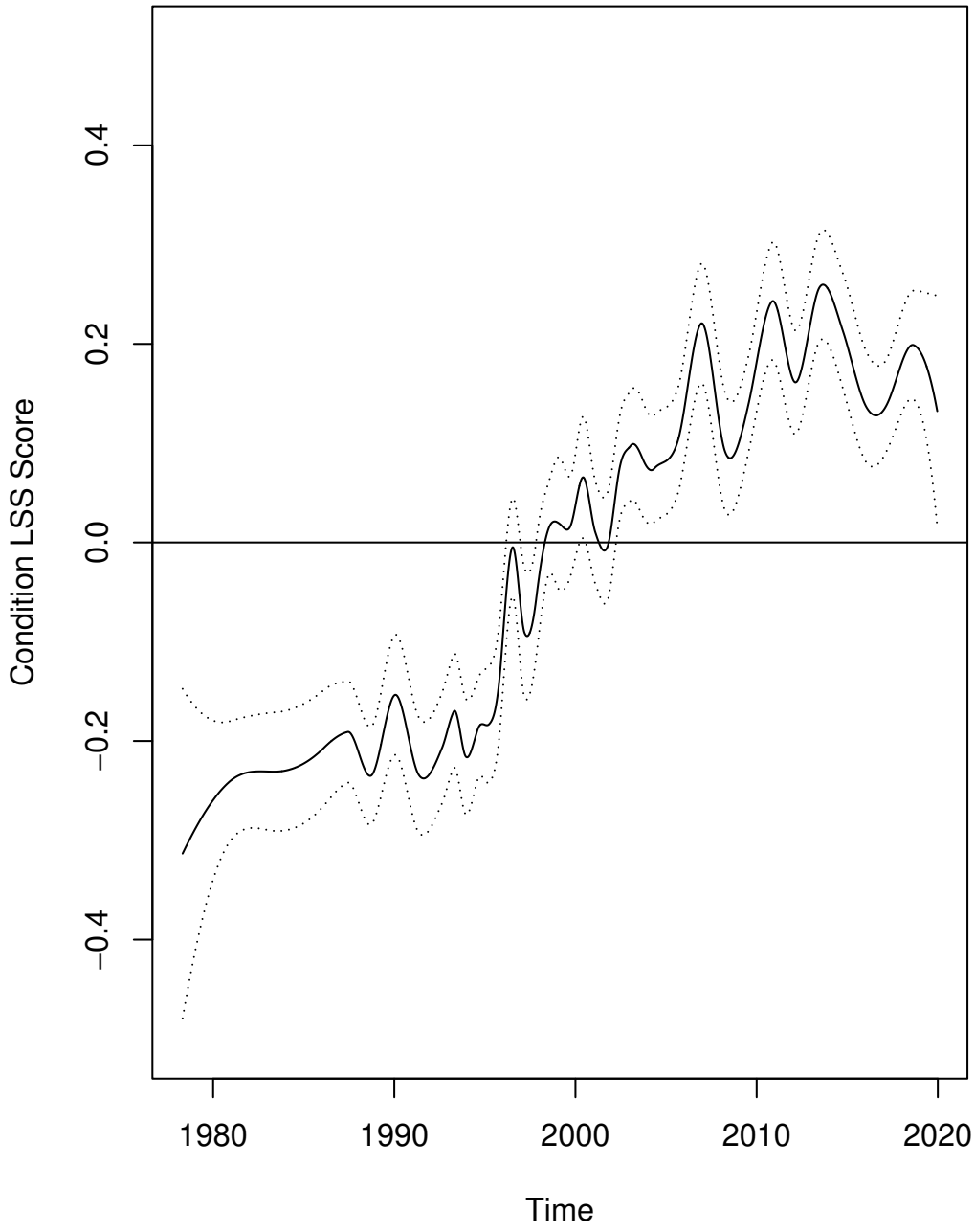


Table A14: LSS Scores of 20 'Easiest' Terms

	LSS Score
stc	0.034
website	0.031
approve	0.031
modalities	0.030
anti-corruption	0.030
mechanisms	0.029
case	0.028
fisheries	0.028
standard	0.027
information	0.027
transparency	0.027
anticorruption	0.027
statistical	0.027
appeals	0.027
together	0.027
addressing	0.026
decrees	0.026
defining	0.026
criteria	0.026
gazette	0.026

Table A15: LSS Scores of 20 'Hardest' Terms

	LSS Score
pass	-0.019
smefp	-0.020
bringing	-0.020
import	-0.020
advisors	-0.020
close	-0.021
surcharge	-0.021
reflect	-0.021
allowances	-0.021
subsidy	-0.021
separation	-0.022
ghost	-0.022
privatized	-0.022
surcharges	-0.023
salaries	-0.024
closure	-0.024
paid	-0.025
enactment	-0.025
wages	-0.026
merge	-0.028

Table A16: Average LSS Scores by Condition Policy Areas

	Condition Policy Area	Avg. LSS Score
1	OTH	2.468
2	INS	0.810
3	ENV	0.388
4	SOE	0.315
5	POV	0.283
6	RTP	0.122
7	FP	0.109
8	SP	0.070
9	EXT	0.048
10	PRI	-0.121
11	FIN	-0.132
12	DEB	-0.295
13	LAB	-0.315