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The IMF and Climate Change

TRACKING THE IMF'S ENGAGEMENT AND LEADERSHIP

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ABSTRACT

What led the International Monetary Fund (IMF) to create and implement a climate change strategy after overlooking it for many years? Under the leadership of Managing Director (MD) Kristalina Georgieva, the IMF began to mainstream climate change across the institution. This paper evaluates the extent to which Georgieva's words translate into IMF policies and practices by bridging the literature on institutional policy change and textual analysis. This study assesses recent surveillance guideline reviews and applies textual analysis to IMF Official speeches, Article IV Country Reports and Disbursements Staff Reports between the third quarter of 2017 and the first quarter of 2021. While the Managing Director's rhetoric opened the space for policy change, the substantive policy change was elusive when the Executive head's operational and policy positions were not aligned with key principals of the IMF. In contrast, when the position of the MD is aligned with key member state interests, more radical shifts in Fund practices and policies are likely. We layer existing theoretical approaches to institutional change at the IMF to assess the impacts of Georgieva's rhetoric on IMF policies and practices.

Keywords: Institutional change, International Monetary Fund, Content analysis, Climate change

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INTRODUCTION

While the International Monetary Fund (IMF) has long signaled an interest in contributing to combat climate change, 2021 marked a critical juncture in the IMF's commitment to the cause. Under the leadership of Managing Director Kristalina Georgieva, the IMF accelerated the mainstreaming of climate change. Most notably, Georgieva made a concerted effort to advocate that the COVID-19 pandemic responses must prioritize combatting the virus, protecting the vulnerable and staging a green recovery. This paper evaluates the extent to which Georgieva's words translate into IMF policies and practices.

This study builds upon two central claims in the literature on institutional change at the IMF. First, we acknowledge the power of executive management in the Managing Director (Mountford, 2009; Hall, 2016; Hall and Woods, 2018) to set the Fund's agenda, influence state preferences and present key strategic objectives for Executive Board approval. Second, we recognize the outsized influence of the United States as a principal of the IMF with unilateral veto power (Woods, 2003; Stone, 2011). We find that the alignment of both the Fund's executive and key member states is necessary for radical shifts in the IMF's policies and practices.

To assess the extent to which Georgieva's rhetoric translated into policies and practices at the IMF, we conduct a textual analysis of IMF Official speeches, Article IV Country Reports and Disbursement Staff Reports between the third quarter of 2017 and the first quarter of 2021. We select this timeframe to create three distinct periods for comparison: pre-Georgieva ascent to IMF leadership, Georgieva at IMF leadership with the Trump administration and Georgieva at IMF leadership with the Biden administration.

During the overlap between the Trump administration that was openly hostile to climate change science and Georgieva's tenure as Managing Director, there was a misalignment on these issues between the key member state and the Fund leadership. Upon the inauguration of President Biden, one of his first actions as president was to sign an executive order on climate change and rejoin the Paris Agreement, signaling an alignment on the issue between Georgieva and the US.

Additionally, we assess the Climate Change Policy Assessments program, the 2021 Comprehensive Surveillance Review (CSR) and the Financial Sector Assessment Program (FSAP) review. This preliminary analysis finds that Georgieva's platform for mainstreaming climate change at the IMF has been successful. We argue that Georgieva's agenda-setting as the Fund's leader was a necessary but insufficient condition for a radical shift in the institution's practices, as evidenced by our textual analysis. While Georgieva had a limited impact before the inauguration of Biden, our assessment suggests that Georgieva's success required an alignment of US interests on the climate agenda.

This paper is organized as follows. The first section reviews the state-of-the-art literature on institutional change at the IMF and develops a framework for evaluating the potential scope of change. The second section presents our methodology and data. The third section discusses our main findings and suggestions on avenues for future research.

LITERATURE REVIEW

Understanding Change in the IMF

The IMF is one of the Bretton Woods Institutions founded in the wake of World War II. The IMF, a multilateral international organization, is tasked with ensuring the stability of the global monetary system and has 190 nation-states as members. The governance of the Fund is carried out by the

Board of Governors, the Executive Board and Management. The figure below displays the three-tiered governance structure and related activities and mandates.

The Board of Governors is the highest decision-making authority of the IMF. Each country member is represented. It has operational authority over policy, lending, and other matters are delegated to the Executive Board. The Executive Board consists of a 24-member body that oversees and supervises the activities of the Fund. The Board discusses all aspects of the institution›s work, from ordinary business to policy issues relevant to the global economy. The Board typically makes decisions based on consensus, but sometimes formal votes are taken (IMF, 2021).

In this context, the United States has a strategic and significant role: it is the IMF's largest shareholder and owns 17.4 percent of total quotas (representing the amount of financing) and 16.5 percent of votes. The country has its seat on the Executive Board and unique veto power over major policy decisions. The use of resources suggests a high degree of US influence. "The US interests being pursued are not always clear; they are the result of contestation within the US political system itself" (Woods, 2003 p.15).
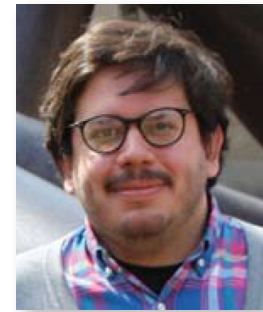
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Figure 1: The IMF governance structure
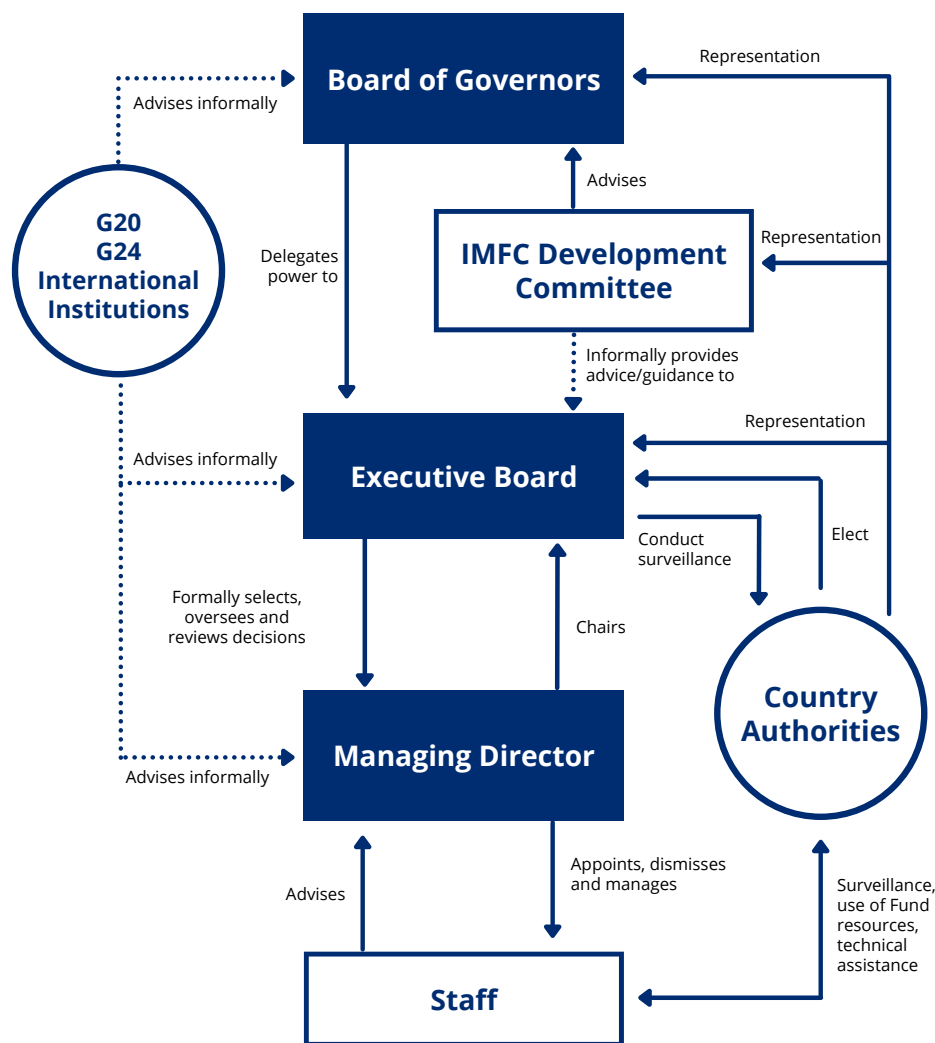
Source: IMF (2021).

Despite IMF's relevance for more than 75 years after its inception, the institution today is quite different than at its foundation. Some of the Fund's mandate and mission changes have been transformative and sweeping, while others have been more incremental and gradual.

What are the conditions under which the IMF changes its policies and practices? This question has been addressed extensively in institutional change and international political economy literature. The existing literature on the IMF and institutional change has identified multiple potential causal factors: economic ideas, interest-group politics, political power, reputation and leadership. Yet, international organizations do not always heed the call to change and can be path-dependent. This section briefly explores some of the key literature on various internal and external mechanisms that lead to shifts in the IMF, before discussing the official structure of IMF decision making and governance. The section concludes by identifying and synthesizing the conditions under which change is possible at the IMF.

International organizations' "decisions result from strategic interactions between goal-oriented actors operating within institutional constraints" (Sommerer *et al.*, 2021, p.5). Specifically to IMF, "its internal structure, hiring patterns and organizational culture are typically described as stable, hierarchical, monolithic" (Momani, 2005; Lang, 2021, p.603) and remarkably resilient to exogenous sources of change (Koremenos, Lipson and Snidal, 2001). There are numerous organizations that persist and are resistant to adaptation despite extensive calls for significant change (Chorev, 2012). Some have argued that this is due to "how network effects and barriers to entry affect patterns of cooperation and the availability of outside options for institutional members." (Lipscy, 2015)

While scholarship in the rationalist camp of international relations has evaluated how institutional change unfolds in international organizations and regimes, it "has often focused on formal and fundamental change. These accounts acknowledge that radical changes to the formal foundations of international institutions occur infrequently" (Kentikelenis and Babb, 2019, p.1725). A contrasting literature of scholars working in the traditions of constructivism, historical institutionalism and discursive institutionalism takes incremental change seriously. However, it has often struggled to observe change increments in real-time.

Literature that explores more incremental pathways for change identifies some potential drivers of institutional change. Bureaucrats and epistemic communities, through the use of ideas and social learning, incrementally shift the practices of an institution. Thus, "sociological accounts would point to the informal and more moderate refashioning of established arrangements that are commonly premised on underly ideational shifts" (Kentikelenis and Babb, 2019, p.1726). While much of the literature has found that change must be either formal and fundamental, or informal and incremental, Kentikelenis and Babb (2019) find that the IMF was fundamentally changed without a change to its mandate, as "agents can pursue a strategy of norm substitution—the shifting of routine expectations about the appropriateness of particular practices" (Kentikelenis and Babb, 2019, p.1726).

Studies of change at the IMF have considered many internal drivers of institutional change. Belloni and Moschella (2013) identified the IMF's self-perception of its reputation as a key determinant in including CSOs in IMF meetings following the Asian Financial Crisis. Others have explored the role of preference formation inside international organizations (IOs) and how internal debates can lead to shifts in the IMF's behavior (Chwieroth, 2010). In particular, Chwieroth (2014) finds that in the case of IMF capital controls, the layering of new policies on to existing policies led to incremental shifts that cumulatively induced transformative change at the Fund.

In contrast, some scholarship has explored the role of external drivers of IMF change. Woods (2003) and Stone (2011) stress the United States' political preferences influence the agenda and activities of the IMF. Woods (2003) finds the Fund senior managers would in no way present a recommendation

that risked US disapproval. Stone (2011) pointed out that the US exerts control of the IMF through informal procedures and active participation. Ban (2015) points to crises as critical junctures that open space and ignite reassessment of Fund practices and identifies shifts in the Fund's doctrine on fiscal consolidation as a key example.

Other scholars have evaluated both internal and external drivers of IO's change. Momani (2010) assesses the role that staff's composition, training and organizational culture played in creating the IMF's Heavily Indebted Poor Countries (HIPC) policy. In particular, the author identifies the mechanisms through exogenous norm pressure on multilateral organizations for change and how the IMF responded by devising an alternative norm. Finally, Abdelal (2007) traces the roots of the IMF's drive for capital liberalization to French socialists. When Michel Camdessus became IMF's Managing Director, he leveraged his leadership role to work towards this aim. While Chwieroth (2010) also mentions the Camdessus influence as the Managing Director of the Fund, he identifies the Fund's staff as key to the institution's pursuit of liberalization. Clegg (2010) contends that multilevel feedback loops to incorporate both exogenous state preferences and endogenous structural social environments of IOs are needed to assess IMF's change effectively.

Related literature has sought to understand the process and context of institutional change. Moschella (2011) identifies the process of incremental accumulation as a mechanism through which "decades of incremental accumulation of knowledge and small transformation" led to the delayed onset rapid and systemic shift in fund practices following the 2007-8 financial crisis. Vetterlein and Moschella (2014) seek to move beyond dichotomous categorizations of change and look to speed and scope as two dimensions that determine the type of change that unfolds within international organizations.

This article draws from not only the literature that emphasizes the outsized role of the US over the IMF, but the scholarship that takes the role of IMF Managing Director as the Chief Executive seriously. In synthesizing our framework, we also draw from Vetterlein and Moschella's (2014) policy change taxonomy. They identify two components of change: speed and scope (slow/rapid and incremental/radical, respectively). Since we are measuring policy change at the Fund, we apply Vetterlein and Moschella's adaptation of Peter Hall's (1993) three different degrees of change to understand the scope of change we observe: "first-, second- and third-order change that refers to changes in the settings, instruments, and goals of a policy, respectively." (Vetterlein and Moschella, 2014, p.145)

A Synthesized Approach to Evaluate Change at the IMF

The most recent and innovative literature on change at the IMF synthesizes theoretical approaches and move beyond reductionist, unilinear frameworks. Drawing from the literature on the IMF, this section outlines the conditions under which we expect to find substantive and measurable change in IMF policy, if the words of the Managing Director translate into action.

Our point of departure is considering the vision for executive leadership at the Fund. We assume that leadership matters are independent of the IO's main shareholders, and has autonomy (Abdelal, 2007; Copelovitch and Rickard, 2021). The influence of the Managing Director is also affirmed by the IMF's Independent Evaluation Office (IEO). The IEO emphasizes that the Executive head can propose to the Board all significant policies and their application to member countries, including bilateral and multilateral surveillance, and controls the use of the IMF's financial resources. What is more, he or she is the central public face of the Fund (Mountford, 2009). Finally, Copelovitch and Rickard (2021) stressed leaders of IOs influence important outcomes and "MDs are political animals, and it is difficult to believe they leave their politics entirely at the door when entering the IMF."

While the US holds considerable sway over outcomes at the IMF, even scholars skeptical of the IMF's institutional autonomy note that the Managing Director maintains "a remarkable degree of gate-keeping power and proposal power as chairman of the Executive Board" (Stone, 2011). As Managing Director, the executive head is responsible for managing "a bureaucracy of international civil servants and ensure that the organization is accountable and delivers results" (Hall and Woods, 2018). Thus, taking into consideration the role of the Managing Director, extensive contacts with officials across the globe, role as Chairman of the Executive Board and position as head of the IMF staff (Van Houtven, 2002), we assert that it is a necessary but not sufficient condition that the Managing Director of the IMF proposes a major policy change.

Drawing from the literature's understanding of the Managing Director's influence and certain principals, particularly the United States (Woods, 2003; Stone, 2011) we argue that the agenda alignment between them is a necessary condition, or third-order change, to occur.

Figure 2: From the Director's Words to Actions
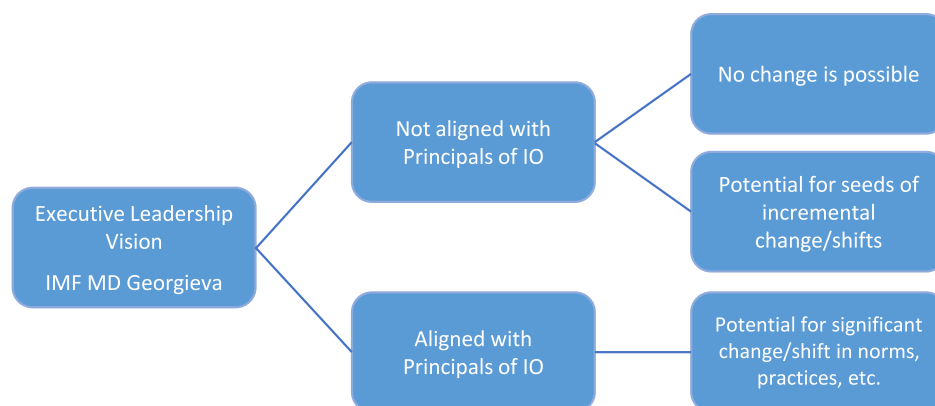
Source: Own elaboration.

The index developed in this paper evaluates the extent to which the words of the IMF's Managing Director translate into action. We expect to find that, when executive leadership and key member state interests align, IMF actions (such as lending and/or surveillance) will reflect that vision. However, when the Managing Director position is not in sync with the principals, two outcomes are possible: no change or incremental change. As outlined above, shifts in IMF practices and policies are possible when they do not align with the US or other key principals, though such change is likely to be more incremental.

DATA DESCRIPTION AND METHODOLOGY

This paper examines the determinants of the IMF shift in climate change across the organization. It applies textual analysis techniques to measure the extent to which IMF management and staff have focused on climate change from 2017 to the present. This study analyzed:

1. Speeches made by senior IMF management;

2. Articles IV surveillance reports; and,

3. Country reports associated with IMF disbursements.

We focus on the documents published on the IMF webpage and in English from August 2017 to June 2021. In this context, we have a universe of 894 publications.[1] As observed in Table 1, our dataset includes 288 speech records from senior IMF management, 452 Article IV reports and 154 lending disbursement documents. The former and current IMF Managing Directors, Christine Lagarde and Kristalina Georgieva, conducted the most speeches (54 percent) during the sample period.

Table 1: Summary of Documents in the Dataset

Corpus	Number of Documents	Number of Relevant Words		
		Mean	Min	Max
Speeches	288	771	156	2,873
Disbursements	154	14,950	2,934	38,544
Surveilance	452	17,482	8,919	39,919

Note: The relevant words exclude stopwords, numbers, webpages, and emails from the documents.

Source: Own elaboration.

We follow a process similar to other text analysis papers (Mihalyi and Mate, 2019; Bloom et al., 2020; Hollander et al., 2020; Ramos and Gallagher, 2021). In this sense, we search for keyword combinations (bi-grams or trigrams) and retrieve summary statistics of the frequency of use of those terms as a share of all the relevant words in a particular document.

As mentioned above, the first step entails building a corpus of search terms. We selected terms from three documents: IMF (2020), Volz (2020) and Leal Filho (2020). We choose them because they highlight different aspects of climate literature. Volz (2020) was a starting point for discussing climate in IMF publications by applying textual analysis, which was a critical methodological reference to our work. Leal Filho (2020) is an academic forward and encyclopedia. Finally, IMF (2020a) was elaborated by IMF Fiscal Affairs Department in the COVID-19 aftermath, guiding countries to a green recovery after the pandemic.

Leaning on the publications mentioned above, we identified 117 key climate-related bigrams (two-word combinations).

The second step implies using the corpus of keyword combinations to identify the frequency of each of these combinations in each of the 894 documents. With these count terms, we calculated the frequency per document of climate-related word combinations.

Table 2 shows what bigrams were most mentioned in these publications. Overall, "climate change" was the most cited search term. This term appeared, on average, 3.28 times per Article IV report, while in the disbursements reports and the speeches made by IMF Officials, the term appeared 1.38 and 0.92 times per document, respectively. Search terms like a carbon price or pricing, fuel subsidy and fuel tax were also discussed in greater frequency throughout these documents.[2]

We then construct the IMF Climate Focus Index document. This ratio consists of the number of times the climate-related bigrams are mentioned divided by the total pool of relevant words in a specific document. The document terms' pool of relevant words was calculated without stop words,

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[1] Detailed information of the speakers and countries analyzed can be found in Annex A.

[2] Detailed examples can be observed in Annex B.

Table 2: Frequency of Appearance of Most Important Grams per Type of Document

Bi-gram	Total	Number of Documents	Mean per Document
A: Speaches			
climate change	264	100	0.917
carbon pric(e)(ing)	102	43	0.354
climate-related	51	20	0.177
climate risk	45	23	0.156
low-carbon	37	25	0.128
B: Disbursements			
climate change	212	44	1.377
fuel tax(es)	38	6	0.247
renewable energ(y)(ies)	35	16	0.227
carbon tax(es)	24	8	0.156
climate-related	21	6	0.136
C: Surveilance			
climate change	1,478	187	3.270
fuel subsid(y)(ies)	347	81	0.768
renewable energ(y)(ies)	308	136	0.681
carbon tax(es)	204	51	0.451
energy efficien(cy)(cient)	188	86	0.416

Source: Own elaboration.

numbers, webpages and emails. This exercise followed the methodology in Mihalyi and Mate (2019), and Ramos et al. (2021).

$$IMF\ Climate\ Exposure\ Index_{\{i\}} = \frac{number\ climate\ grams_{\{i\}}}{number\ of\ relevant\ grams_{\{i\}}}$$

This ratio is scaled from 0 to 1, with a higher score meaning more attention to climate elements per document. We generate these indices for each document and disaggregate them into a quarterly time series. We then perform t-tests to examine the extent to which the frequency of attention to climate change significantly differs across different eras of IMF leadership, taking the Lagarde Era as control.

Results

We find the new Managing Director was a key driver of climate momentum in the Fund. Yet, the scope of change has increased as the United States' major shareholder turned around its domestic policy towards a low-carbon economy and charged the IMF with mainstreaming climate policy across the IMF toolkit. The alignment of upper management and the major shareholder has contributed to a significant shift in practices. Following, we present the results from our analysis of management speeches, Article IV surveillance and IMF disbursements.

Speeches

Examining the extensive margin (frequency of attention) of climate change in the speeches made by IMF's senior management, Figure 5 reveals that climate change has received significantly more attention under the leadership of Kristalina Georgieva than under former Managing Director Christine Lagarde.

The attention to climate change was tempered by Georgieva's team during the term of former US President Donald Trump but trended upwards when President Joseph Biden was elected president in November of 2020. The administration of Donald Trump was not supportive of major global climate policy, going so far as to withdraw from the Paris Climate Agreement. Yet, President Biden's administration has climate as a cornerstone of its domestic and international agendas. Indeed, during his first week in office, the new US administration issued a broad Executive Order outlining their domestic and international climate policy. The Executive Order notes explicitly that the United States will use its shareholder advantage to advance its climate policy agenda at the IMF, saying that the Secretary of the US Treasury shall:

> 'develop a strategy for how the voice and vote of the United States can be used in international financial institutions, including the World Bank Group and the International Monetary Fund, to promote financing programs, economic stimulus packages, and debt relief initiatives that are aligned with and support the goals of the Paris Agreement.' (The White House, 2021).

The upper left panel of Figure 3 shows that 45.8 percent of the speeches made by former Managing Director Lagarde addressed climate change. Meanwhile, Georgieva has spoken about climate-related elements in 59.7 percent of her speeches since she took office. Since Biden has been elected, that figure is 73.9 percent.

Figure 3: Frequency of Speeches
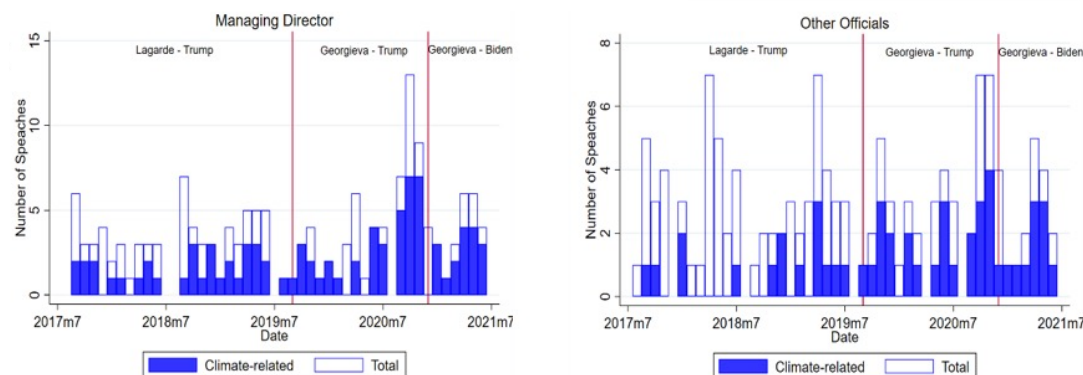
Source: Own elaboration.

These findings are also reflected in the IMF Climate Exposure Index (intensive margin) during the time range. As displayed in the lower-left panel of Figure 4, the IMF Climate Exposure Index was stable during Managing Director Lagarde. However, the Index increases after Managing Director Georgieva goes to the helm of the IMF. Again, this becomes accentuated since President Biden took office in the United States.

This shift, both the extensive and intensive margins, towards greater attention to climate elements reflects a clear change in the IMF policy. Kristalina Georgieva, in her first speech as Managing Director of the IMF, highlighted the role of the IMF in international cooperation to address climate change risks and challenges.

> And we need to work together to address climate change. (...) It is a crisis where no one is immune, and everyone has a responsibility to act. One of our priorities at the IMF is to assist countries as they reduce carbon emissions and become more climate resilient (Georgieva, 2019).

A similar pattern is observed among the other senior IMF management officials, who also shifted more attention toward climate change during the new administration. As can be observed in the right panel of Figure 3, the other IMF Officials rarely mentioned climate change in their speeches during the Lagarde era. Nevertheless, since Kristalina Georgieva came to the IMF, the frequency of attention to climate change increased considerably. The right panel of Figure 4 shows the average IMF Climate Exposure Index among the other senior IMF management officials. As demonstrated, there is an increase in the Index during the Georgieva era in comparison with the Lagarde era. However, we do not observe a difference associated with the political change in the U.S., as we do with the Managing Director.

Figure 4: Climate Exposure of Speeches
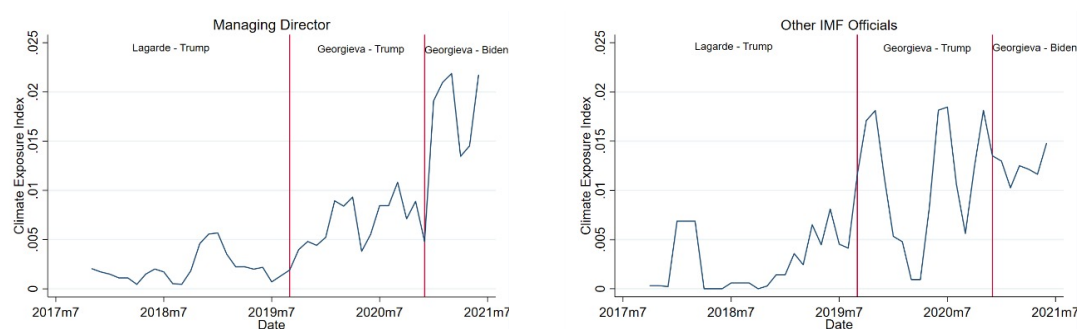
* Three-month moving average.
Source: Own elaboration.

Table 3 summarizes the outlook in greater detail. The IMF Climate Exposure Index shows that Managing Director Kristalina Georgieva addressed climate change 5.3 climate-related times per 1000 relevant words while she coincides with President Trump and 15 climate-related times per 1000 relevant words since President Biden assumed office. These two measures are, on average, 3.5 and 10.0 times more frequent than the behavior exhibited by Georgieva's predecessor, Christine Lagarde, who on average addressed climate change 1.5 times per 1000 relevant words.

The same pattern is identified among the rest of the IMF Officials. Among the Deputy Managing Directors, after the change from Lagarde to Georgieva, the engagement of climate change in their speeches increased by a factor of 4.7 during the Lagarde - Trump era and 6.2 times more since President Biden took office. For instance, the Deputy Managing Director Tao Zhang was one of the IMF officials that has worked since the Lagarde administration and gave relatively greater importance to climate change, talking on average 4.6 climate-related words per 1000 relevant words. For example, Director Zhang made a speech in January 2018 in which he describes the work made by the IMF related to climate change and the goals that the institution might follow in the future.

The IMF has been involved in climate change work for several years. Our recent work reflects compelling evidence that adapting to climate change is one of the most important challenges facing economic policy makers worldwide. (…) the Fund's core mandate is to ensure economic stability and resilience. Climate change could prove to be a destabilizing force for the global economy if it is not addressed (Zhang, 2018).

Since Kristalina Georgieva took office, Director Zhang mentioned 2.8 times more climate-related elements than during the Lagarde era. In particular, he has been eloquent to incentivize countries to perform a "green recovery" from the COVID-19 crisis.

I am delighted to join the Parliamentary Assembly for this immensely important and timely discussion on the COVID-19 and climate change crises. The first crisis is acute and immediate, the second slower burning but equally critical. The two crises are clearly interlinked, because the scale and nature of the economic policy decisions being made now will crucially affect climate outcomes far into the future. So, far from putting climate on the back burner, the pandemic adds to the urgency of addressing it (Zhang, 2020).

A similar pattern is found across the Heads of Departments. The climate exposure index implies that they have mentioned around seven climate-related phrases per 1000 words, on average, during the Georgieva era; this is 2.7 times more than the average climate exposure index during the Lagarde era. For instance, the Director of the IMF's Monetary and Capital Markets Department, Tobias Adrian, has expressed 3.1 times more climate-related grams during the Georgieva than in the Lagarde era.

Adrian (2019) stressed, for example, "transition risk is multifaceted. Climate change and the transition to a low-carbon economy are subject to fundamental uncertainty. The complexity of climate risks leads economists and climate scientists into areas that are deeply challenging."

Table 3: Climate Exposure Index in Speeches made by IMF Officials

Speaker	Lagarde - Trump (2017m6 - 2019m9) (A)	Georgieva - Trump (2019m9 - 2020m12) (B)	Georgieva - Biden (2021m1 - 2021m6) (C)	Difference in Climate Exposure (B - A)	(C - A)
Managing Director	0.0015	0.0053	0.0150	0.0039*** (3.0288)	0.0135*** (6.3350)
Managing Officials	0.0021	0.0097	0.0127	0.0076*** (3.1062)	0.0106*** (3.8364)
David Lipton	0.0004	0.0062			
Geoffrey W.S. Okamoto		0.0015	0.0059		
Carla Grasso	0.0000				
Antoinette M. Sayeh		0.0064	0.0115		
Tao Zhang	0.0046	0.0121	0.0213		
Mitsuhiro Furusawa	0.0004	0.0010	0.0000		
Head of Departments	0.0025	0.0070	0.0060	0.0045 (1.0042)	0.0035 (0.7211)
Tobias Adrian	0.0028	0.0094	0.0083		
Vitor Gaspar	0.0005	0.0052			
Abebe Aemro Selassie		0.0052	0.0034		
Total	0.0018	0.0069	0.0127	0.0051*** (4.2220)	0.0108*** (6.6334)

Note: t-statistics of mean tests are in parenthesis. *** p<0.01, ** p<0.05, * p<0.1
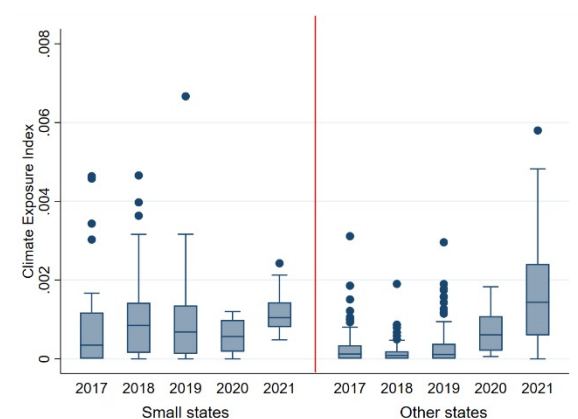
Source: Own elaboration.

This systematic pattern across IMF Officials suggests the new Managing Director and the US administration triggered a diffusion of climate action across the institution relatively quickly. But a more frequent discussion about climate does unnecessary mean more activity in the matter. To examine the extent to which an increase in climate narrative permeated into institutional action, we apply our index to Article IV documents and the Country Reports associated with disbursements made by the IMF during the same period.

Surveillance

Under the Lagarde administration, the IMF has incorporated climate change into monitoring reports. In 2016, the Fund recognized small states are disproportionately impacted and exposed to climate change (IMF, 2016). In the following year, the IMF launched a series of Climate Change Policy Assessments (CCPAs) for different countries: Seychelles (June 2017), St. Lucia (June 2018), Belize (November 2018), Grenada (July 2019), the Federated States of Micronesia (September 2019) and Tonga (June 2020).

As displayed in the left panel of Figure 5, the surveillance documents of small states used to have higher Climate Exposure Index scores than the rest of the country members. Besides, since Kristalina Georgieva assumed the position of Managing Director at the IMF, there has been greater attention to climate-related topics on average among the countries across the globe. As can be observed in the right side of Figure 5, the Climate Exposure Index scores in the surveillance documents related to the non-small states increased significantly in years 2020 and 2021. In a similar trend but in more moderate way, we see an increase in the scores related to the small states in year 2021.

Figure 5: Climate Exposure Index in Article IV Surveillance Documents

Source: Own elaboration.

The CCPAs, a pilot basis with the World Bank, are an incremental policy change, with restricted countries analysis and an addition to the existing surveillance setting. There hasn't been any reorientation to new goals or purposes regarding climate in countries' monitoring mandates. Recently, the IMF (2021) recognized this program's limits and asked for a shift in the matter, "the ad-hoc approach has reached its limits, however, and the time has come for a more systematic and strategic integration of climate change into the IMF's activities."

Specifically, as summarized in Table 4, climate change mentions and engagement in surveillance documents increased after Kristalina Georgieva became the IMF Managing Director. In the second moment, between the third quarter of 2019 and the fourth quarter of 2020, Article IV documents had roughly six climate-related grams per 10,000 relevant words, almost 1.6 times more than the

frequency observed during the Lagarde era. However, in monitoring publications conducted in 2021, on average, around 13 climate-related grams per 10,000 words, which implies an increment of 3.3 times more than in the Lagarde era.

As described in Figure 3, the pattern is driven by increased attention to climate change risks and hazards and more dispersed analysis rather than the IMF's previous focus on small countries. Table 4 highlights this expansion in surveillance publications. As the focus on climate was already present among the small countries, the IMF Climate Exposure Index showed no significant statistical change across time.

The most critical dynamics were observed in the "other countries" exposure score. They had on average 2 and 2.1 climate-related words per 10,000 relevant words in the first and second moment, respectively. Meanwhile, in 2021, the Article IV surveillance documents showed an exposure of 13 climate-related words per 10,000 relevant words, which implies an increase by a factor of 5.7 to the Lagarde era.

For example, Costa Rica's 2021 Article IV report had an intensive discussion about climate change and adaptation and mitigation plans. The Fund staff welcomed the National Adaptation Policy 2018-2030 and the Institutional Strategic Plan 2018-2022. According to the IMF (2021e), "[the Fund's] Directors applauded the authorities for their pioneering efforts to improve resilience to climate change further and fully decarbonize their economy present tremendous opportunities for new jobs and sustainable growth."

Table 4: Climate Exposure Index in Article IV Surveillance Documents

	Lagarde - Trump (2017m6 - 2019m9) (A)	Georgieva - Trump (2019m9 - 2020m12) (B)	Georgieva - Biden (2021m1 - 2021m6) (C)	Difference in Climate Exposure	
				(B - A)	(C - A)
Small Countries	0.0010	0.0011	0.0013	0.0001 (0.3336)	0.0002 (0.5907)
Other Countries	0.0002	0.0005	0.0013	0.0003*** (4.2123)	0.0008*** (9.0664)
Total	0.0004	0.0006	0.0013	0.0002** (2.3815)	0.0009*** (5.7732)

Note: t-statistics of mean tests are in parenthesis. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Source: Own elaboration.

Following the same pattern as CCPAs, the increase in climate discussions and engagement in monitoring documents in the second period is also characterized by incremental changes. There was no guidance shift or formal change regarding surveillance between the third quarter of 2019 and the fourth quarter of 2020. Otherwise, it was observed a leader pushed its agenda with its staff.

Lending

We find that attention to climate change is yet to permeate IMF lending policies significantly, nor has there been significant change between Lagarde and Georgieva. Table 5 exhibits the frequency of attention to climate change and our index as applied to disbursement documents. However, we observe a differentiated pattern when we disaggregate among the conditional and unconditional IMF loan programs. As shown in Table 5, we see a marginal increase in the discussion of climate change in the early quarters of the Georgieva era and a spike upwards after Biden is elected (around 7.6 times more in the Climate Exposure Index than the programs disbursed during the Lagarde era).

Meanwhile, in unconditional disbursements, we do not observe a significant change between the three highlighted moments.

Table 5: Climate Exposure Index in Article IV Loan Disbursement Documents

Programs	Lagarde - Trump (2017m6 - 2019m9) (A)	Georgieva - Trump (2019m9 - 2020m12) (B)	Georgieva - Biden (2021m1 - 2021m6) (C)	Difference in Climate Exposure (B - A)	(C - A)
Conditional	0.0002	0.0003	0.0013	0.0001 (1.3951)	0.0012*** (4.5396)
Unconditional	0.0002	0.0001	0.0003	-0.0001 (-1.5383)	0.0000 (0.0576)
Total	0.0002	0.0001	0.0006	0.0000 (-1.0944)	0.0004** (2.2695)

Note: t-statistics of mean tests are in parenthesis. *** $p<0.01$. ** $p<0.05$. * $p<0.1$

Source: Own elaboration.

Two elements might be driving these results. First, in general, the IMF Staff might be focusing more on the short-term financial needs and economic fundamentals conditions of the requesting country rather than more structural elements like climate change. In this sense, we observe a substantial increase in the number of unconditional disbursements during 2020, given the countries' financial needs to address the COVID-19 crisis. This result is consistent with the conclusion obtained in Gallagher and Maldonado (2020), where the IMF COVID-19 response fails to induce a "green" recovery among the countries.

Comprehensive Surveillance Review and a Financial Sector Assessment Program Review

Moving beyond the content analysis and the index developed for this paper, we also assess the recent IMF policy and agenda-setting efforts at a high-level reflecting tractable shifts in line with Georgieva's rhetoric. We reviewed the IMF's 2021 Comprehensive Surveillance Review (CSR) and Financial Sector Assessment Programs (FSAPs), as they will state the Fund's framework and surveillance activity for the next five or ten years.

The IMF global, regional, and country surveillance identifies potential risks to stability and recommends appropriate policy adjustments to sustain economic growth and promote financial and economic stability (IMF, 2020a). The two key tools of bilateral surveillance efforts are Article IV consultations and FSAPs.

In the past years, country authorities, IMF Executive Directors, mission chiefs and IMF staff discussed this new surveillance guideline. In May of 2021, the IMF approved the CSR and FSAP review. Both aimed to update the Fund's responses and policy advice to confront the challenges posed by macrocritical issues and recognized that climate change has important implications for financial stability.

In the CSR, the IMF Directors "concurred that climate change is a global existential threat that poses critical macroeconomic and financial policy challenges for the entire Fund membership" in the coming years and decades (IMF, 2021d). They decided to cover frequent, systematic, and mandatory climate change mitigation actions in the 20 largest emitters of greenhouse gases, and with all members every 5 to 6 years (IMF, 2021c). They claimed these country reports would better integrate macrocritical trends and discuss a more extensive set of policies to limit damaging spillovers. In

other countries, mitigation considerations will be voluntary in case both the authorities and staff agree. IMF Directors also discussed financing resilience-building policies for the most vulnerable countries to climate change, and comprehensive analysis of transition risks to fossil fuel exporters or towards a low carbon economy while considering each country's circumstances (IMF, 2021c).

In the FSAP review, the IMF Director also recognized climate change as a potential threat to financial stability. The Fund's staff recommended a plan to extend the scope of all assessments to include physical climate shocks and the transition to low-carbon economy risks. They also suggested incorporating climate and macrofinancial scenarios in FSAP bank stress tests. The targets are: i) climate risk analysis considering financial stability risks at both the conventional medium-term (3 to 5 year) horizon and the long-term (30 to 50 year) horizon; ii) including both physical and transition risks; and, iii) working in cooperation with other global bodies.

These changes suggest a more systematic way to monitor climate risks and more emphasis on potential outcomes. Besides, the IMF's staff is willing to explore frameworks and tools to support spillover surveillance. Yet, as highlighted in the review document, "the scope and depth of climate change analysis will depend on resource availability" (IMF, 2021b). But there are in progress some plans to reallocate resources and strategies to support a climate change department.

These pieces of evidence suggest the CSR and FSAP review as radical policy changes. A reorientation of institutional resources and existing instruments to new policy goals feature a conversion type of policy (Streeck and Thelen, 2005). In this case, it is explicit the surveillance tool has been rerouted to incorporate macro critical and spillover elements.

Table 6 presents 2021 CSR's main elements and compares them with previous surveillance guidance.

Table 6: Before and After CSR, Main Characteristics

	Before CSR	After CSR
	2014 Triennial Surveillance Review	
Diagnosis	• Global interconnections continue to shape domestic policy choices as countries look to shield against adverse spillovers and seize opportunities to harness the benefits of globalization. • Make surveillance more risk-based and better reflect global interconnections	• Important trends—in digital technology, climate change, inequality, demographics, and geopolitics—affecting economic sustainability will also present opportunities and challenges and, where macro-critical, will need to be incorporated in the Fund's surveillance. • Better position Fund engagement and policy advice to help the membership confront the challenges posed by the emerging macrofinancial landscape
Priorities	• Integrating and deepening risk and spillovers analysis • Achieving greater impact • More tailored and expert policy advice, Continue accounting for growth and sustainability implications in fiscal advice. Be selective in advising on structural policies	• Confronting risks and uncertainties and preempting and mitigating spillovers • Fostering economic sustainability • More timely, topical, targeted interconnected, and better-informed monitoring reports.
Climate change	• No mention of climate change	• Directors recognized the importance of a more systematic integration into surveillance of macro-critical emerging topics, including climate change. They generally agreed that coverage of climate change mitigation in Article IV consultations would be strongly encouraged for the largest emitters of greenhouse gases

Source: Own elaboration.

Table 7 systemizes our main results. It arranges the three periods with the shifts observed in surveillance and lending activities regarding climate change. As discussed in the surveillance activity, we observed CCPAs to the Small States and an improvement in climate focus scores as incremental changes. In Georgieva's leadership and the Biden administration, the 2021 CSR and FSAP review were milestones regarding climate change in the Fund's framework, characterizing a radical change.

In lending activity, during the first two time periods, we identified a low climate engagement in disbursement documents and no changes. Yet, we found an upward spike after Biden is elected, characterizing an incremental change.

Table 7: Summary of the IMF Activities and Type of Change

Activity	Elements of analysis	Period of analysis	Method	Evidence	Result
Surveillance	Climate Change Policy Assessments to the Small States	Lagarde and Trump era and Georgieva and Trump era	Qualitative analysis	Analysis limited to highly exposed countries to climate change	Incremental change
Surveillance	Article IV country reports	Lagarde and Trump era and Georgieva and Trump era	Content analysis	Lower and uneven climate focus scores in Articles IV	No change
Surveillance	Article IV country reports	Georgieva and Biden era	Content analysis	Higher and even climate focus scores in Articles IV	Incremental change
Surveillance	2021 CSR and FSAP review	Georgieva and Biden era	Qualitative analysis	Recognition of climate change as a macrocritical element	Radical change
Lending	Disbursement documents	Lagarde and Trump era and Georgieva and Trump era	Content analysis	Lower climate focus scores in unconditional and conditional disbursements	No change
Lending	Disbursement documents	Georgieva and Biden era	Content analysis	Higher climate focus scores in unconditional disbursements	Incremental change

Source: Own elaboration.

CONCLUSIONS

The IMF's current Managing Director Georgieva has increasingly advocated for the importance of climate change. This paper evaluates the extent to which Georgieva's words translate into the Fund's policies and practices. It contributes to the existing literature with a method to assess institutional changes in real-time.

Our analysis of speeches finds that 45.8 percent of the speeches made by former Managing Director Lagarde addressed climate change. Meanwhile, Georgieva has spoken about climate-related

elements in 59.7 percent of her speeches since she took office and 73.9 percent after Biden has been elected. We identified the same trend in IMF officials' speeches, mainstreaming climate momentum in the Fund.

We then assessed the extent to which Georgieva's rhetoric translated into concrete policy shifts in surveillance and lending activities. We observed CCPAs to the Small States and an improvement in climate focus score as incremental changes. Under Georgieva's leadership following the inauguration of the Biden administration, we find that the 2021 CSR and FSAP review incorporate climate change into the Fund's framework and characterize a radical change. In terms of lending activity, during the first two periods analyzed, we identify a low engagement on climate change issues in disbursement documents and thus no change. Yet, we find an upward spike after Biden's election that led to an alignment with the Managing Director characterizing an incremental change.

REFERENCES

Abdelal, R. (2007) *Capital Rules: The Construction of Global Finance*. Harvard University Press.

Adrian, T. (2019) 'Stress-Testing for the Transition to a Low-Carbon Economy', in *IMF*. Available at: https://www.imf.org/en/News/Articles/2019/04/10/sp04102019-stress-testing-for-the-transition-to-a-low-carbon-economy (Accessed: 3 February 2022).

Belloni, R. and Moschella, M. (2013) 'The IMF and civil society', *International Politics*, 50(4), pp. 532–552. doi:10.1057/ip.2013.14.

Chorev, N. (2012) *The World Health Organization between North and South*. Cornell University Press. doi:10.7591/cornell/9780801450655.001.0001.

Chwieroth, J. (2010) *Capital Ideas: The IMF and the Rise of Financial Liberalization*. Princeton University Press. Available at: https://press.princeton.edu/books/paperback/9780691142326/capital-ideas (Accessed: 31 January 2022).

Chwieroth, J.M. (2014) 'Fashions and Fads in Finance: The Political Foundations of Sovereign Wealth Fund Creation', *International Studies Quarterly*, 58(4), pp. 752–763.

Clegg, L. (2010) 'In the loop: multilevel feedback and the politics of change at the IMF and World Bank', *Journal of International Relations and Development*, 13(1), pp. 59–84. doi:10.1057/jird.2009.28.

Copelovitch, M. and Rickard, S. (2021) 'Partisan Technocrats: How Leaders Matter in International Organizations', *Global Studies Quarterly*, 1(3), p. ksab021. doi:10.1093/isagsq/ksab021.

Gallagher, K. and Maldonado, F. (2020) 'The role of IMF in the fight against COVID-19 : the IMF Covid Recovery Index', *Covid economics : vetted and real-time papers* [Preprint], (42).

Georgieva, K. and Director, I.M. (no date) *Annual Meetings 2019 'Curtain Raiser' Speech*, *IMF*. Available at: https://www.imf.org/en/News/Articles/2019/10/03/sp100819-AMs2019-Curtain-Raiser (Accessed: 3 February 2022).

Hall, N. (2016) *Displacement, Development, and Climate Change: International Organizations Moving Beyond Their Mandates*. Illustrated edição. London ; New York: Routledge.

Hall, N. and Woods, N. (2018) 'Theorizing the role of executive heads in international organizations', *European Journal of International Relations*, 24(4), pp. 865–886. doi:10.1177/1354066117741676.

IMF Executive Board Discusses a Strategy to Help Members Address Climate Change-Related Policy Challenges (no date) *IMF*. Available at: https://www.imf.org/en/News/Articles/2021/07/30/pr21238-imf-executive-board-discusses-strategy-address-climate-change-related-policy-challenges (Accessed: 3 February 2022).

International Monetary Fund (2021) *Costa Rica : 2021 Article IV Consultation and Request for an Extended Arrangement Under the Extended Fund Facility-Press Release; Staff Report; and Statement by the Executive Director for Costa Rica*, *IMF*. Available at: https://www.imf.org/en/Publications/CR/Issues/2021/03/01/Costa-Rica-2021-Article-IV-Consultation-and-Request-for-an-Extended-Arrangement-Under-the-50136 (Accessed: 3 February 2022).

International Monetary Fund (no date) *Small States' Resilience to Natural Disasters and Climate Change - Role for the IMF*. Available at: https://www.imf.org/en/Publications/Policy-Papers/Issues/2016/12/31/Small-States-Resilience-to-Natural-Disasters-and-Climate-Change-Role-for-the-IMF-PP5079 (Accessed: 21 January 2022).

Kentikelenis, A.E. and Babb, S. (2019) 'The Making of Neoliberal Globalization: Norm Substitution and the Politics of Clandestine Institutional Change', *American Journal of Sociology*, 124(6), pp. 1720–1762. doi:10.1086/702900.

Koremenos, B., Lipson, C. and Snidal, D. (2001) 'The Rational Design of International Institutions', *International Organization*, 55(4), pp. 761–799.

Lang, V. (2021) 'The economics of the democratic deficit: The effect of IMF programs on inequality', *The Review of International Organizations*, 16(3), pp. 599–623. doi:10.1007/s11558-020-09405-x.

Leal Filho, W. (2020) *Handbook of Climate Change Resilience*. Barnes & Noble. Available at: https://www.barnesandnoble.com/w/handbook-of-climate-change-resilience-walter-leal-filho/1129252335 (Accessed: 3 February 2022).

Lipscy, P.Y. (2015) 'Explaining Institutional Change: Policy Areas, Outside Options, and the Bretton Woods Institutions', *American Journal of Political Science*, 59(2), pp. 341–356.

Mihalyi, D. and Mate, A. (2019) *Text-mining IMF country reports - an original dataset*, *MPRA Paper*. 100656. University Library of Munich, Germany. Available at: https://ideas.repec.org/p/pra/mprapa/100656.html (Accessed: 21 January 2022).

Momani, B. (2005) 'Limits on streamlining Fund conditionality: the International Monetary Fund's organizational culture,' *Journal of International Relations and Development*, 8(2), pp. 142–163. doi:10.1057/palgrave.jird.1800053.

Momani, B. (2010) 'IMF rhetoric on reducing poverty and inequality', in *Global governance, poverty and inequality*. Routledge, pp. 103–121.

Moschella, M. (2011) 'Lagged Learning and the Response to Equilibrium Shock: The Global Financial Crisis and IMF Surveillance', *Journal of Public Policy*, 31, pp. 121–141. doi:10.1017/S0143814X11000043.

Mountford, A. (2009) 'Governance of the International Monetary Fund', in *Studies of IMF governance : a compendium*. Ruben Lamdany & Leonardo MartinezDiaz.

Ramos, L. (2021) 'Climate risk and IMF surveillance policy: a baseline analysis', *Climate Policy* [Preprint]. Available at: https://www.tandfonline.com/doi/full/10.1080/14693062.2021.2016363 (Accessed: 31 January 2022).

Sommerer, T. *et al.* (2021) 'Decision-making in international organizations: institutional design and performance', *The Review of International Organizations* [Preprint]. doi:10.1007/s11558-021-09445-x.

Stone, R.W. (2011) *Controlling Institutions: International Organizations and the Global Economy*. Cambridge: Cambridge University Press. doi:10.1017/CBO9780511793943.

Streeck, W. and Thelen, K. (2005) 'Introduction: institutional change in advanced political economies', in Streeck, W. and Thelen, K. (eds) *Beyond continuity: institutional change in advanced political economies.* Oxford et al.: Univ. Press, pp. 1–39.

The White House (2021) *Executive Order on Tackling the Climate Crisis at Home and Abroad.* Available at: https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/ (Accessed: 3 February 2022).

Van Houtven, L. (2002) *Governance of the IMF :* International Monetary Fund,. Available at: https://digitallibrary.un.org/record/480875 (Accessed: 3 February 2022).

Vetterlein, A. and Moschella, M. (2014) 'International organizations and organizational fields: explaining policy change in the IMF', *European Political Science Review*, 6(1), pp. 143–165. doi:10.1017/S175577391200029X.

Volz, U. (2020) *Climate-proofing the Global Financial Safety Net*. London, Rotterdam, and Bonn: SOAS Centre for Sustainable Finance, German Development Institute. Available at: https://eprints.soas.ac.uk/35084/ (Accessed: 21 January 2022).

Woods, N. (2003) 'The United States and the International Financial Institutions: Power and Influence Within the World Bank and the IMF', in *US Hegemony and International Organizations*. Oxford: Oxford University Press. doi:10.1093/0199261431.003.0005.

Zhang, T. (2020) 'Adapting to Climate Change: Pricing Right, Taxing Smart, and Acting Now', in *IMF*. Available at: https://www.imf.org/en/News/Articles/2018/01/31/sp013118-adapting-to-climate-change-pricing-right-taxing-smart-and-acting-now (Accessed: 3 February 2022).

Zhang, T. (2020) *Opening Remarks— COVID-19: Opportunities for a Green Recovery*, *IMF*. Available at: https://www.imf.org/en/News/Articles/2020/05/22/sp052220-opening-remark-zhang (Accessed: 3 February 2022).

ANNEX

A. Descriptive information of Officials' speeches, Article IV surveillance documents, and disbursement documents used in the analysis

Officials' Speeches

Speaker	Position	Number of Speeches	Date of Speeches	
			Min	Max
Christine Lagarde	Managing Director	73	2017m9	2019m9
Kristalina Georgieva	Managing Director	85	2019m10	2021m6
David Lipton	First Deputy Managing Director	25	2017m10	2020m2
Geoffrey W.S. Okamoto	First Deputy Managing Director	5	2020m9	2021m6
Mitsuhiro Furusawa	Deputy Managing Director	8	2017m9	2020m2
Tao Zhang	Deputy Managing Director	43	2017m9	2021m6
Carla Grasso	Deputy Managing Director	2	2018m2	2018m7
Antoinette M. Sayeh	Deputy Managing Director	6	2020m6	2021m5
Gita Gopinath	Economic Counsellor and Research Department Director	1	2021m3	2021m3
Tobias Adrian	Financial Counsellor and Monetary and Capital Markets Department Director	28	2017m8	2021m5
Vitor Gaspar	Fiscal Affairs Department Director	8	2017m9	2020m11
Abebe Aemro Selassie	African Department Director	4	2019m11	2021m5

Source: Own elaboration.

Article IV Surveillance Documents

Country	Number of Documents	Article IV Years	Country	Number of Documents	Article IV Years
Afghanistan	2	2017, 2019	Dominican Republic	3	2017, 2018, 2019
Albania	2	2017, 2018	Ecuador	2	2016, 2019
Algeria	2	2017, 2018	Egypt	1	2017
Angola	2	2016, 2018	El Salvador	2	2018, 2019
Argentina	1	2017	Estonia	3	2016, 2018, 2019
Armenia	2	2019	Eswatini	2	2017, 2019
Aruba	2	2017, 2019	Ethiopia	3	2017, 2018, 2019
Australia	4	2016, 2017, 2018, 2019	Euro Area	3	2017, 2018, 2019
Austria	2	2016, 2018	Fiji	3	2017, 2018, 2019
Azerbaijan	1	2019	Finland	3	2017, 2018, 2019
Bahamas	4	2017, 2018, 2019, 2020	France	4	2017, 2018, 2019, 2020
Bangladesh	3	2017, 2018, 2019	Gabon	1	2019
Barbados	2	2017, 2019	Gambia	1	2017
Belarus	2	2017, 2018	Georgia	1	2018
Belgium	4	2017, 2018, 2019, 2020	Germany	4	2017, 2018, 2019, 2020
Belize	3	2017, 2018, 2019	Ghana	2	2017, 2019
Benin	2	2017, 2019	Greece	3	2016, 2018, 2019
Bhutan	1	2018	Grenada	2	2018, 2019
Bolivia	2	2017, 2018	Guatemala	2	2018, 2019
Bosnia and Herzegovina	2	2017, 2020	Guinea-Bissau	1	2017
Botswana	3	2017, 2018, 2020	Guyana	3	2017, 2018, 2019
Brazil	4	2017, 2018, 2019, 2020	Haiti	1	2019
Brunei Darussalam	1	2019	Honduras	2	2018, 2019
Bulgaria	3	2017, 2019, 2020	Hong Kong	4	2016, 2017, 2018, 2019
Burkina Faso	1	2018	Hungary	3	2017, 2018, 2019
Cabo Verde	2	2018, 2019	Iceland	3	2017, 2018, 2019, 2021
Cambodia	3	2017, 2018, 2019	India	3	2017, 2018, 2019
Cameroon	1	2018	Indonesia	4	2016, 2017, 2019, 2020
Canada	4	2017, 2018, 2019, 2021	Iran	2	2016, 2020
Central African Republic	1	2018	Iraq	3	2017, 2019, 2020
Chad	1	2019	Ireland	3	2017, 2018, 2019
Chile	2	2018, 2021	Israel	3	2017, 2018, 2020

Country	Number of Documents	Article IV Years	Country	Number of Documents	Article IV Years
China	4	2017, 2018, 2019, 2020	Italy	3	2017, 2018, 2020
Colombia	5	2017, 2018, 2019, 2020, 2021	Jamaica	1	2018
Comoros	2	2018, 2019	Japan	3	2017, 2018, 2019
Costa Rica	3	2017, 2019, 2021	Jordan	2	2017, 2020
Cote d'Ivoire	1	2018	Kazakhastan	3	2017, 2018, 2019
Croatia	3	2017, 2018, 2019	Kenya	1	2018
Curacao	2	2018, 2019	Kiribati	2	2017, 2018
Cyprus	3	2017, 2018, 2019	Korea	3	2017, 2019, 2021
Czech Republic	3	2017, 2018, 2019	Kosovo	3	2017, 2018, 2020
Democratic Republic of Congo	1	2019	Kuwait	4	2016, 2017, 2019, 2020
Denmark	3	2017, 2018, 2019	Kyrgyz	1	2019
Djibouti	2	2016, 2019	Lao	3	2016, 2017, 2019
Dominica	2	2017, 2018	Latvia	3	2017, 2018, 2019
Lebanon	2	2016, 2019	Russia	4	2017, 2018, 2019, 2020
Lesotho	2	2017, 2019	Rwanda	2	2017, 2019
Liberia	2	2018, 2019	Samoa	4	2017, 2018, 2019, 2021
Lithuania	3	2017, 2018, 2019	San Marino	4	2017, 2018, 2019, 2020
Luxembourg	3	2017, 2018, 2019	Sao Tome and Principe	1	2018
Macao	2	2016, 2019	Saudi Arabia	3	2017, 2018, 2019
Macedonia	3	2017, 2018, 2019	Senegal	2	2016, 2018
Madagascar	2	2017, 2019	Serbia	2	2017, 2019
Malawi	1	2018	Seychelles	2	2017, 2019
Malaysia	5	2017, 2018, 2019, 2020, 2021	Sierra Leone	1	2019
Maldives	2	2017, 2019	Singapore	3	2017, 2018, 2019
Mali	1	2018	Slovak Republic	3	2017, 2018, 2019
Malta	4	2016, 2017, 2019, 2020	Slovenia	2	2017, 2018
Marshall Islands	1	2018	Solomon Islands	3	2017, 2018, 2019
Mauritania	1	2017	Somalia	3	2016, 2017, 2019
Mauritius	2	2017, 2019	South Africa	3	2017, 2018, 2019
Mexico	4	2017, 2018, 2019, 2020	South Sudan	2	2016, 2019
Micronesia	2	2017, 2019	Spain	4	2016, 2017, 2018, 2020
Moldova	2	2017, 2020	Sri Lanka	1	2018
Mongolia	2	2017, 2019	St Kitts and Nevis	1	2017
Montenegro	3	2017, 2018, 2019	St Lucia	3	2017, 2018, 2019
Morocco	4	2016, 2017, 2019, 2020	St Vincent and Grenadines	2	2017, 2018
Mozambique	2	2017, 2019	Sudan	2	2017, 2019
Myanmar	4	2016, 2017, 2018, 2019	Suriname	2	2018, 2019
Namibia	2	2017, 2019	Sweden	3	2017, 2019, 2021
Nauru	2	2017, 2019	Switzerland	2	2018, 2019
Nepal	3	2017, 2018, 2020	Thailand	3	2017, 2018, 2019, 2021
Netherlands	3	2016, 2018, 2019	Timor-Leste	2	2017, 2019
New Zealand	4	2017, 2018, 2019, 2021	Togo	2	2016, 2019
Nicaragua	2	2017, 2019	Tonga	2	2017, 2020
Niger	2	2016, 2019	Trinidad and Tobago	2	2017, 2018
Nigeria	4	2017, 2018, 2019, 2020	Tunisia	2	2017, 2021
Norway	3	2017, 2018, 2019	Turkey	3	2017, 2018, 2019
Pakistan	1	2017	Tuvalu	1	2018
Palau	1	2018	Uganda	2	2017, 2019
Panama	3	2017, 2018, 2020	Ukraine	1	2016
Papua New Guinea	4	2016, 2017, 2018, 2019	United Arab Emirates	2	2017, 2018
Paraguay	2	2017, 2019	United Kingdom	3	2017, 2018, 2020
Peru	4	2017, 2018, 2019, 2021	United States	4	2017, 2018, 2019, 2020
Philippines	3	2017, 2018, 2019	Uruguay	4	2016, 2017, 2018, 2019
Poland	3	2017, 2018, 2020	Uzbekistan	3	2018, 2019, 2021
Portugal	3	2017, 2018, 2019	Vanuatu	2	2018, 2019
Qatar	3	2016, 2018, 2019	Vietnam	4	2017, 2018, 2019, 2020
Republic of Congo	1	2019	Zambia	2	2017, 2019
Romania	3	2017, 2018, 2019	Zimbabwe	2	2017, 2019

Source: Own elaboration.

Disbursement Documents

Country	Number of Documents	Date	Country	Number of Documents	Date
Afghanistan	2	2020m4, 2020m11	Ecuador	3	2019m3, 2020m5, 2020m9
Albania	1	2020m4	Egypt	2	2020m5, 2020m6
Angola	2	2018m12, 2020m9	El Salvador	1	2020m4
Argentina	2	2018m6, 2018m10	Equatorial Guinea	1	2019m12
Armenia	2	2019m5, 2020m5	Eswatini	1	2020m7
Bahamas	1	2020m6	Ethiopia	1	2020m4
Bangladesh	1	2020m5	Gabon	3	2017m6, 2020m4, 2020m7
Barbados	3	2018m10, 2020m6, 2020m12	Gambia	4	2017m6, 2020m3, 2020m4, 2021m1
Benin	3	2017m4, 2020m5, 2020m12	Georgia	2	2017m4, 2020m5
Bolivia	1	2020m4	Ghana	1	2020m4
Bosnia and Herzegovina	1	2020m4	Grenada	1	2020m4
Burkina Faso	2	2018m3, 2020m4	Guatemala	1	2020m6
Cabo Verde	1	2020m4	Guinea	2	2017m12, 2020m6
Cameroon	3	2017m6, 2020m5, 2020m10	Guinea-Bissau	2	2018m6, 2021m1
Central African Republic	4	2017m7, 2017m12, 2019m12, 2020m4	Haiti	1	2020m4
Chad	3	2017m6, 2020m4, 2020m7	Honduras	1	2020m6
Chile	1	2020m5	Jamaica	1	2020m5
Colombia	3	2018m5, 2020m5, 2020m9	Jordan	2	2020m3, 2020m5
Comoros	2	2019m7, 2020m4	Kenya	1	2020m5
Costa Rica	2	2020m4, 2021m3	Kosovo	1	2020m4
Cote d'Ivoire	3	2017m7, 2017m12, 2020m4	Kyrgyz	2	2020m3, 2020m5
Democratic Republic of Congo	2	2019m12, 2020m4	Lesotho	1	2020m7
Djibouti	1	2020m5	Liberia	2	2019m12, 2020m6
Dominica	1	2020m4	Madagascar	4	2017m6, 2020m4, 2020m7, 2021m3
Dominican Republic	1	2020m4	Malawi	4	2018m4, 2019m11, 2020m5, 2020m10
Maldives	1	2020m4	Poland	1	2017m1
Mali	3	2017m7, 2019m8, 2020m4	Republic of Congo	1	2019m7
Mauritania	3	2017m12, 2020m4, 2020m9	Rwanda	2	2020m4, 2020m6
Mexico	2	2017m11, 2019m11	Samoa	1	2020m4
Moldova	1	2020m4	Sao Tome and Principe	3	2019m10, 2020m4, 2020m7
Mongolia	2	2017m5, 2020m6	Senegal	1	2020m4
Montenegro	1	2020m6	Seychelles	1	2020m5
Morocco	1	2018m12	Sierra Leone	4	2017m6, 2018m11, 2020m6, 2021m3
Mozambique	2	2019m4, 2020m4	Solomon Islands	1	2020m6
Myanmar	2	2020m6, 2021m1	Somalia	1	2020m3
Namibia	1	2021m3	South Africa	1	2020m7
Nepal	1	2020m5	South Sudan	2	2020m11, 2021m3
Nicaragua	1	2020m11	St Lucia	1	2020m4
Niger	3	2017m1, 2018m12, 2020m4	St Vincent and Grenadines	1	2020m5
Nigeria	1	2020m4	Tajikistan	1	2020m5
North Macedonia	1	2020m4	Togo	2	2017m5, 2020m4
Pakistan	2	2019m7, 2020m4	Tonga	1	2021m1
Panama	2	2020m4, 2021m1	Tunisia	1	2020m4
Papua New Guinea	1	2020m6	Uganda	1	2020m5
Paraguay	1	2020m4	Ukraine	2	2018m12, 2020m6
Peru	1	2020m5	Uzbekistan	1	2020m5

Source: Own elaboration.

B. Climate-Related Grams used

'adaptation action'

'adopt climate-smart'

'adopting climate-smart'

'air pollution'

'alternatives to coal'

'brown activit'

'brown industr'

'carbon border'

'carbon content'

'carbon dioxide'

'carbon emission'

'carbon footprint'

'carbon intensive'

'carbon pric'

'carbon tax'

'carbon-intensive firm'

'carbon-intensive industr'

'carbon-intensive investment'

'carbon-price floor'

'clean fuel'

'climate adaptation'

'climate challenge'

'climate-change'

'climate change'

'climate commitment'

'climate conscious'

'climate consideration'

'climate crisis'

'climate dimension'

'climate event'

'climate externalit'

'climate goal'

'climate hazard'

'climate impact'

'climate-induced'

'climate plan'

'climate readiness'

'climate resilient'

'climate response'

'climate risk'

'climate-safe'

'climate shock'

'climate smart'

'climate spending'

'climate-conscious polic'

'climate-conscious project'

'climate-related'

'climate-smart infrastructure'

'climatic'

'coal asset'

'coal burn'

'coal business'

'coal combustion'

'coal consumption'

'coal export'

'coal extraction'

'coal harvest'

'coal industry'

'coal making'

'coal need'

'coal power plant'

'coal producer'

'coal production'

'coal sector'

'coal subsid'

'coal transition'

'coal-based enterprise'

'coal-fired power plant'

'cost of carbon'

'curbing emission'

'demand for coal'

'developing climate-smart'

'disaster fund'

'emissions reduction'

'emissions target'

'energy efficien'

'environmental dimension'

'environmental protection'

'environmental standard'

'environmentally'

'export of coal'

'flood protection'

'fossil free'

'fossil fuel'

'fossil-fuel power'

'fuel subsid'

'fuel tax'

'fuelwood extraction'

'gas emission'

'ghg emission'

'global warming'

'green activit'

'green bond'

'green budget'

'green fee'

'green industr'

'green investment'

'green measure'

'green polic'

'green recovery'

'green response'

'greenhouse gas'

'greening recovery'

'high emission'

'high-emissions vehicle'

'low carbon'

'low-carbon'

'mitigation action'

'physical risk'

'reduce emission'

'renewable energ'

'resilient building'

'resilient road'

'supporting adaptation'

'transition risk'

'zero emission'

'zero-emission vehicle'

C. Text snippets for Officials' speeches, Article IV surveillance documents, and disbursement documents

Officials' Speeches		
Details	**Text Snippet**	**Climate Exposure Index**
Speaker: Tobias Adrian Date: 04-15-2019 Title: Stress-Testing for the Transition to a Low-Carbon Economy	"**Transition risk** is multifaceted. **Climate change** and the transition to a **low-carbon** economy are subject to fundamental uncertainty. The complexity of **climate risks** leads economists and climate scientists into areas that are deeply challenging. (…)"	0.0508
Speaker: Tao Zhang Date: 10-09-2020 Title: Sustainable Transformation of Societies – A Green Consensus for Macro-Fiscal Policies?	"Monetary and financial sector policies can support the management of **climate risk** and help cushion **climate impacts** on output and inflation."	0.0495
Speaker: Kristalina Georgieva Date: 01-25-2021 Title: Inaugural GCA Ministerial Dialogue on Adaptation Action	"This is why at the IMF we embrace the transition to the new climate economy — one that is **low carbon** and **climate resilient**, that helps fight the causes of **climate change** and adapt to its consequences."	0.0491

Source: Own elaboration.

Article IV Surveillance Documents		
Details	**Text Snippet**	**Climate Exposure Index**
Country: St. Lucia Date: 01-21-2020 Article IV: 2019	"A **carbon tax** would leverage St. Lucia's mitigation strategy by strengthening incentives for shifting to renewables and improving **energy efficiency**."	0.0067
Country: Kiribati Date: 12-19-2019 Article IV: 2018	"The fiscal framework should more fully consider the toll **climate change** will take on Kiribati's finances. The medium-term budget should include an explicit provision for **climate change** adaptation, up to 2 percent of GDP annually to cover the recurrent costs (including infrastructure damage repair)."	0.0047
Country: Micronesia Date: 08-04-2017 Article IV: 2017	"The FSM is highly vulnerable to natural disasters and adverse effects of **climate change**. The authorities should plan for both adaptation and contingent fiscal costs. **Adaptation costs** are related to the cost of preparing for **climate change**, such as climate-proofing infrastructure, or building coastal protection, and could be around 1–3 percent of GDP every year and are built into the fiscal baseline (Box 1)."	0.0046

Source: Own elaboration.

Disbursement Documents		
Details	**Text Snippet**	**Climate Exposure Index**
Country: Mozambique Date: 04-19-2019 Instrument: RCF	"Unless further actions are taken, **climate change** would significantly hinder economic development and increase poverty. Integrating **climate change** within the broader developmental agenda is critical to improve preparedness going forward."	0.0014
Country: Tonga Date: 01-25-2021 Instrument: RCF	"Lower the intensity of **fossil fuels** by raising the contribution of **renewable energy**. Invest in **climate resilient** infrastructure."	0.0012
Country: Barbados Date: 09-12-2020 Instrument: EFF	"Improving resilience to natural disasters and **climate change** by further improving the disaster resilience of construction and strengthening the public procurement system can help reduce risks to the outlook."	0.0009

Source: Own elaboration.

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